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A sepia-toned photograph of a vintage tractor on a grassy hill. The tractor is positioned on the left side of the frame, with its large rear wheel and front wheel visible. The background features rolling hills or mountains under a hazy sky. A tree branch with leaves hangs down from the top right corner. The overall mood is nostalgic and contemplative.

*"It is often the failure who is the
pioneer in new lands, new undertakings,
and new forms of expression."* —ERIC HOFFER

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COVER PHOTO: DONALD M. JONES • COVER DESIGN: JESSE CAO

PHOTO BY THINKSTOCK

Pioneering Pride

Pioneers were hands-on folks. Really, they had to be. Whether it was planting crops, fixing a wagon wheel, or butchering a buck, a true pioneer was a bonafide workhorse and a fix-it-all. Today, we have countless hardware stores, repair services, meat processors, grocery stores, and Amazon. But nothing, and I mean nothing, provides the quality and satisfaction of something we do on our own. We can customize a tool to our liking, and we can incorporate that one niche feature no one seems to offer.

A good example of this occurred a few years back, when I bought a trailer for hauling wood. Problem was, this trailer was a basic 8x5 setup with nothing more than low side rails and a basic bed. It didn't even have a loading gate.

My neighbor is retired and extremely handy, so we teamed up to engineer the ultimate wood hauler; something that would safely contain a cord of wood. This meant that to hold a loose pile of fresh cut wood in the field, we needed to build a tall, steel "cage" to safely hold a mess of irregular logs.

With this in mind, I got some steel beams from my father-in-law's workshop, and I bought a bunch of mesh steel. The beams would provide the main structure for the side frame and loading ramp. The mesh would ensure all "open gaps" were closed and secure, safely containing all shapes and sizes of wood.

After sketching, measuring and welding, we built a unique trailer. The loading ramp is strong and functional and works perfectly when rolling a wheeled barrel of wood into the bed. We also built the upper cage structure to bolt on so I could always take it off, quickly converting it into an easier-to-work-with trailer for a side-by-side or ATV.

In the end, it's the best darned wood trailer on the market, one that you can't buy at the store. At least, I've never seen one with its exact specifications.

Basically, that's the idea behind pioneer craftsmanship. Where there's a will, there's a way, I've learned to think. Besides, carrying out your own engineering project keeps your mind young and fresh, stimulating that growth and character we could always use more of. Plus, when it's done right, it's extremely gratifying knowing you've got something that no one else has to offer.

This leads us to this issue's line-up of do-it-yourself articles. At the

top of the heap are articles by Darryl Quidort and Michael Veine. Both of these guys are real modern-day pioneers and personal friends of mine. Darryl is a regular of the magazine, and he never seems to tire of carrying out do-it-yourself projects. In this issue, Quidort discusses how to make a powder horn for your favorite black gun and how to construct an oriole bird-feeder for your yard. Both are uniquely simple, yet innovative and practical.

Veine discusses the advantages of having your own backcountry cabin and keeping the costs of this endeavor down by doing it all on your own.

Another great read comes from Charles Witosky, who gives us 15 basic steps to customizing your own field knife, all for only \$50!

I know 20-plus years ago, a friend of mine made me a custom knife. I selected the blade (made from ATS 34) and the wood handle, and he did the rest. He asked me detailed questions to make the knife exactly what I wanted. When it was all said and done, it was superb, easily topping any other knife I've ever used in the hunting woods, even after nearly 30 years of hunting. It just feels right, holds an edge the way it should, and it boasts great looks with my name etched in the middle of the blade.

Maybe do-it-yourself projects don't always turn out as good as we think. Maybe we spend a lot of time and hassle tinkering and building for no reason, when we could just go out and buy something for cheaper with no time and tools involved.

But, for some reason, whether it's an illusion or not, based on quality or mere ego, do-it-yourself seems to be a better way to go. If nothing more, it brings us closer to the pioneers before us, so we can live out their ways and share in the spirit they had.



PHOTO BY GETTY IMAGES / KNIFE PHOTO BY JOE BELL



JOE BELL

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news



Help Save the Condors!

CALIFORNIA CONDOR CONSERVATION achieved a milestone last hunt season with a record number of big game hunters in the species' core range – 91 percent in Arizona and 84 percent in Utah – voluntarily using non-lead ammunition or removing lead-infected gut piles from the field to prevent condors from feeding on them.

Last season, annual trapping and testing of condors from the Arizona-Utah population revealed a slight increase in the percent of birds with toxic blood-lead levels from the previous year which begged the question, "Where else could condors be getting lead?" Fifty-five of the 73 condors tested over the winter and early spring showed unsafe levels of lead in their blood. Nearly one-third of those birds had extreme, life-threatening toxicity levels. Over the years, lead poisoning has accounted for just over 50 percent of all condor deaths.

Potential sources of lead can often be pinpointed by analyzing what is found in the dead condors' stomachs. Of the 30 documented cases of lead-caused death in condors over the years, 21 contained evidence of ammunition in their gut, suggesting the birds consumed animals that were shot with various types of ammunition. Two condors contained intact bullets; 12 contained fragments like those found in big game animals shot with center-fire rifle ammunition; and, seven contained lead bird shot, the size used for small game including small mammals and birds.

How can you help? Even if you aren't a big game hunter, removing gut piles or using lead alternative ammunition will greatly reduce the risk of harming these beautiful birds.



Nature's Thermometer

IF YOU'RE OUT IN THE WILDERNESS without a thermometer and you want to know the temperature, there's a "natural" way to check. Find yourself a cricket – outdoor temperatures can actually be determined by counting their chirps.

This fact is a weird one, but it's certainly not new. The notion was proposed in 1897 by physicist Amos Dolbear (in reverse) that outdoor temperature would determine the number of cricket calls one would hear. There's a lot of formulas out there but there is one that's endorsed by *The Farmer's Almanac* that is tried and true.

To convert cricket chirps to degrees Fahrenheit, count the number of chirps in 14 seconds then add 40 to get the temperature.

Example: 30 chirps + 40 = 70 F

To convert cricket chirps to degrees Celsius, count the number of chirps in 25 seconds, divide by 3, then add 4.

Example: 48 chirps / 3 + 4 = 20 C

Dr. Peggy LeMone, of the GLOBE Program, a science education program funded by NASA, tested this formula in October of 2007. She found that when she counted chirps during a 15 second span and then added 37, that the resulting figure was actually really close to the actual temperature of the air. But, when she adjusted the formula by counting chirps at 13-second intervals and added 40, the results were even closer, proving the old formula accurate.

One thing to note about this formula is that it's based around the male crickets attempt to attract females. It only works when crickets are around and if the temperature is above 55 degrees Fahrenheit – at lower temperatures crickets aren't in the mood for love.

news

Urine Attractants Illegal?

CHRONIC WASTING DISEASE (CWD) poses a threat to the stability of Virginia white tailed deer populations, and unfortunately, one of the easiest ways this disease is spread, is through urine (as well as feces and saliva).

It doesn't degrade very fast either – CWD can stick around in contaminated soil for years. Thus, in July 1 of this year, Virginia passed a state law banning the use of deer urine, as an attractant, in their fields. But this isn't the only place CWD scares are cropping up.

On June 30, a two-year-old white-tailed deer in a Medina County, Texas deer breeding facility was confirmed positive for Chronic Wasting Disease. This was first case of CWD detected in captive white-tailed deer in Texas. The first case ever detected in Texas was in 2012, in free-ranging mule deer in the Hueco Mountains in far West Texas.

What is CWD? The disease was first recognized in 1967 in captive mule deer in Colorado. Among cervids, it is a progressive, fatal disease that commonly results in altered behavior as a result of microscopic changes made to the brain of affected animals. An animal may carry the disease for years without outward indication, but in the latter stages, signs may include listlessness, lowering of the head, weight loss, repetitive walking in set patterns, and a lack of responsiveness.

How can you avoid it? Although some rumors have spread that it can affect humans, to date there is no evidence that CWD poses a risk to humans or non-cervids. However, as a precaution, the U.S. Centers for Disease Control recommends not eating deer and elk tissues known for harboring the CWD agent— brain, spinal cord, eyes, spleen, tonsils and lymph nodes.



Out of Water? What now?

IF YOU'RE OFF THE GRID and for one reason or another, don't have any water, here are some ways you can collect it from nature.

1. **Collect Rainwater:** Place cups, bowls, or anything else you have that'll gather some water and place it outside.
2. **Soak up dew with a towel:** In the early morning, lay a towel or any other kind of absorbing fabric for that matter, over grass. Then wring the fabric over a bowl.
3. **Use plastic bags:** If you tie a large plastic bag over a leafy branch, the water from the leaves will evaporate and condense in the bag.
4. **Collect water with a solar still:** There are a few extra steps to this one. First, on an inclined hill, dig out an inner and outer oval shaped trench. Next, place a long stick in the center of it and fill your inner trench with plant material. Lastly, cover it all up with a plastic bag, using rocks to hold it in place. Eventually, waters will condense inside and pool in the outer trench.

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GOING VIRAL

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MSRP \$129.95.

> Visit Buylifestraw.com.



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> Visit Proears.com.

ON THE HOOK

Display your trophy proudly with a Table Hooker, a table mount with multi-position adjustable prong that is incorporated into the display, providing perfectly balanced presentation for each species. The mount is easy to set up and available in robust brown or graphite black powder-coated finishes. **MSRP \$59.99.**

> Visit Skullhooker.com.





BLENDING IN

When it comes to camping, propane can make things way easier. But much how the use of propane doesn't quite fit with nature, the white tank that holds it sticks out like a sore thumb. With a mossy oak propane tank cover, your supply will blend right in. These covers are magnetic, taking the shape of your tank without kinks and making them easy to apply or remove. **MSRP \$19.**

> Visit MossyOak.com.



NO BOUNDARIES

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> Visit Browning.com.



SHARP SHOOTING

Test your tactical ability and hone in on targets with a Firefield Compact Green Pistol Laser Light Combo. Designed to mount the most compact or subcompact pistols, this laser light is a multi-functional laser and flashlight-aiming device, featuring an ambidextrous digital switch activation ideal for left and right handed shooters. The laser is powered by a CR2 battery and features three modes: laser only, flashlight only, or both.

> Visit Fire-field.com.

SMART PHONE DIGISCOPE

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> Visit SwarovskiOptik.com.





Oriole in place at the author's feeder.

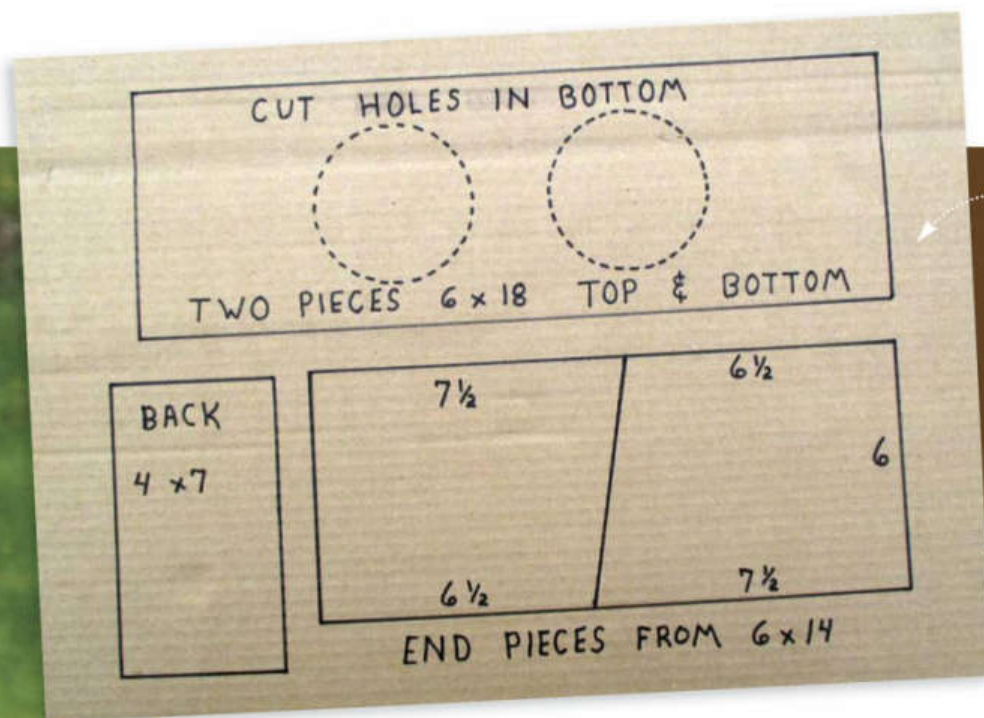
Make Your Own Oriole Feeder

> By **Darryl Quidort**

Each spring my wife and I look forward to the return of the colorful orioles and the busy activity of the birds at our feeder.

Orioles are beautiful orange, yellow and black birds which can be easily drawn to your backyard bird feeder by providing them the proper food. Eight different species of orioles are regular summer visitors to the United States and Canada. The most common are the Baltimore Oriole and Orchard Oriole in the East, and the Bullock's Oriole in the West.

All of the orioles have similar feeding habits. Their natural diet is made up primarily of insects. The birds do have a sweet tooth however and fruits, berries and nectar from flowers are eaten to satisfy their need for sugar. They seem attracted to the color orange. Fresh orange halves will draw the birds to your feeder but jelly is one of the most effective foods you can offer them. Smooth grape jelly is best but other jellies will also satisfy them. Purchase the cheapest jelly you can find,



This diagram shows the dimensions of the five pieces that make up the oriole feeder.

“Fresh orange halves will draw the birds to your feeder but jelly is one of the most effective foods you can offer them.”

but do not use sugar-free jelly because it is the sugar that gives the birds the energy and calories that they need.

It's important to have the fruit or jelly available in early spring since the orioles first arrive in April in southern states and early May in northern states.

After a few weeks, as insects become more available, the birds will switch to an insect diet and eat less of your sweet offerings. Even though the fun lasts only a short time, you will find attracting orioles to your bird feeder a very enjoyable and anticipated part of the spring season.

Building the Feeder

To make your own oriole feeder start with a $\frac{3}{4}$ inch board 5-feet long and 6-inches wide. Cut 2 pieces 18-inches long for the

top and bottom of the feeder. Next, cut a 14-inch piece and split it on an angle as shown in the diagram to make the two sides. The angle allows for a slanted roof on the feeder. From the remaining part of the original board cut a 4-inch piece to be attached on the back of the feeder so it can be fastened to a 4x4-inch post.

Cut two holes in the 18-inch bottom board to set the feeding dishes in so the orioles can't tip them over. Plastic dishes about 4-inches in diameter make great jelly bowls. Make sure they have a rim to hold them securely in the hole.

Use $1\frac{1}{8}$ -inch screw to assemble the pieces of the feeder. Drill pilot holes for the screws to keep the boards from splitting. Leave 2 inches on each end of the feeder for a place to attach a suet feeder or orange halves. **MP**



This shows the finished oriole feeder with grape jelly in the dishes.



Basic Survival Kit

If you're serious about staying alive, you'll carry these items anytime you leave the car.

By Patrick Meitin

The author's survival kit, left, is a bit more involved, than the simple Bear Grylls 8-Piece Gerber kit. The author's kit was designed to remain comfortable and well-fed in the woods for a couple weeks, the Bear kit simply to stay alive.

Shortly after we earned driver's licenses at age of 15 and were able to wander a bit more widely, a small group of like-minded friends and I used to spend much of our summer vacations trekking deep into some piece of handy wilderness. Eastern New Mexico's White Mountain Wilderness or the nasty-rugged Capitan Mountains were our favorites because they were only an hour away from home, but just before graduation we began to make the 5- to 6-hour drive west to enjoy the vast Gila and Aldo Leopold Wilderness areas. The impetuosity of these forays was "survival," to live off the land a couple weeks with nothing but the clothes on our backs, a rain jacket tied around our waists, a 6x8-foot sheet of plastic stuffed in a pocket (or Army surplus rain poncho, which doubled as rain gear), large sheath and pocket knives—and a survival kit of our own making.

The survival-kit rules were simple — everything had to fit into one of those plastic, screw-top Gator-Aide containers (which I still adhere to, though a simple Ziploc or small dry bag would also suffice), which demanded some creative packaging jobs. There were no backpacks involved, everything hung off our belts or was stuffed into the pockets of our surplus US Army fatigues, which we then considered the be-all, end-all in cutting-edge outdoor attire. There were usually three of us and all food was pooled (mostly trout, cottontail rabbits and assorted mushrooms and wild plants). Admittedly, persistent rain was seldom a factor during these warm summer forays, though we did sit through some impressive, white-flashing, booming thunderstorms.

It's important to stress that enjoying such adventures requires a pretty thorough knowledge of a particular region's eatable vegetation and fungus, as you can get yourself into serious trouble eating the wrong plants and mushrooms. We were pretty obsessed about that stuff, investing lawn-mowing and trapping money in books on the subject and testing our identification skills during weekend camping trips with friends and family. All of us grew up trapping as well, so we knew how to capture small animals with simple traps.



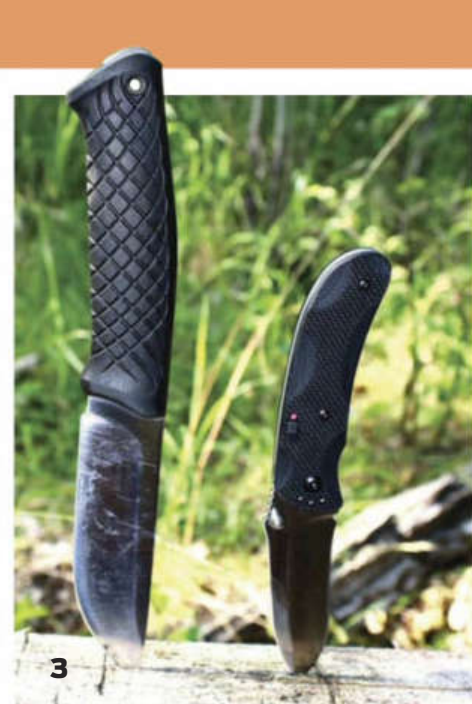
The Contents & Why

• **Waterproof/Windproof matches and several birthday candles.** Fire is a pretty basic necessity to everyday life in the wilderness. Even on those mid-summer forays it could get pretty chilly during the night, especially if a thundershower had swept through and dumped a half-inch of rain to cool things down. Get caught away from cover and the slightest bit wet while out gathering food and without fire, hypothermia was pretty much assured. Besides, would you really want to eat a raw rabbit, or even a trout (which doesn't carry diseases)? A solid means of starting fire is the basis of any viable survival kit (see last month's Survival 101 column, Fire, for more ideas).

• **Light snares.** My survival kits always included several light snares, as this is how nearly all of the rabbits and squirrels we ate originated. See a cottontail dive into a hollow log? Set a snare and come back to collect him in a few hours. Instant dinner! See a rock squirrel ducking in and out of a crack in a cliff? Rock squirrel isn't so bad when you're hungry enough.

I made my own snares at home from woven picture-frame wire and thin, 1/2-inch washers bent into an L shape and holes drilled in opposing sides. The "long" end of the L was the anchor end, the short side, the slide/locking mechanism. I made them about 2-foot long with a loop in the end. Loop the snare around a sapling and back through itself to anchor it; hang it so it hits a rabbit/squirrel in the middle of their chest, and when they run through, it automatically closes around their neck. The slightest struggle only tightens the noose.

• **50-foot fishing line, hooks and weights.** Somewhat conveniently, all of our survival adventures were conducted on or near prime trout streams (though we did lots of exploring of outlying areas for future hunting reference). This assured we would eat, in fact, that we would eat quite well. It really wasn't much of a challenge to rig a fishing pole of a long, springy willow branch, add about 10-feet of line, tie on a hook, pinch on a sinker and grub a worm or chase down a grasshopper for bait. It



was just a matter of stalking within reach of a good hole and dropping the bait in and promptly flipping a flopping trout onto the bank. Should we hang up, we waded in after this all-important gear.

• **2-square-feet of aluminum foil.** Of course, you can cook a trout over a fire by skewering it on a sharpened stick and holding it to the flames. But stuffing a few trout with sliced mushrooms, wild celery and onions, adding a pinch of salt and pepper, wrapping them in foil and laying them carefully over a bed of coals to roast resulted in a much tastier dinner. You could almost make a rock squirrel eatable, cooked in this manner, or at least tender enough to chew.

• **Salt & pepper.** Trout, fire-roasted rabbits and squirrels taste much better with salt and pepper. This is more a luxury than a necessity.

• **30-foot parachute cord.** This transformed the aforementioned plastic sheeting or poncho into cozy shelter on wilderness survival forays. Tie a ridge cord between two conveniently-spaced trees, wad a smooth stone into each corner and tie off on a carved wooden stake to secure the corners. This helped keep us safe

from evening thundershowers, morning dew and even man-eating black bears.

We also invariably carved bows and arrows on these forays, using the parachute cord to create bow-strings. Admittedly, during almost a dozen trips into wilderness I killed exactly one rabbit with such bows, and only because I was presented with a bunny that was obviously severely mentally challenged, or maybe bent on suicide. Though I'd like to believe I could now whittle a better bow, having since fashioned primitive bows with which I've killed big game.

From a first-aid standpoint, parachute cord has many practical uses, from splint material to tourniquets.

• **Space blanket.** On most summer nights we simply slept in our clothes. But there were those nights, especially if we had hiked up into some high summit, peak or pass just to enjoy the view and watch the sun come up the following morning, when a space blanket really did constitute survival. A space blanket does not mean comfort when temperatures fall below 45, but they will keep you alive.

1. Gerber offers the Bear Grylls 8 Piece survival kit, a compact kit including waterproof zippered bag, Gerber Paraframe Mini Knife, emergency whistle, fire starter, waterproof matches, snare wire, cord, cotton ball/fire tender and Priorities of Survival pocket guide.

2. Here are the basics for starting fire contained in the author's personal survival kit, left to right: match book (for striker), birthday candles, mini butane lighter (wrapped in 3 feet of Gorilla Tape for various uses) and waterproof matches.

3. The knife is the bases of any survival kit. The author likes to carry two, a larger sheath knife for chopping and cutting—like this sturdy Steel Will Druid—and a smaller folding knife for dressing game—like this open-assist, locking Utilitac 1-A from Ontario Knife Company.



4



6



7



8



9

4. Basic shelter to keep you dry in rain or snow is easily fashioned from a small sheet of plastic and stout parachute cord. A ridge line is created between two trees, corners tied and staked to secure from wind.

5. To secure the corners of his plastic lean-two the author ties a slip loop, wads a stone or small pine cone in the corner and draws it tight. This prevents the plastic from tearing but will hold tight in wind.

6. Erecting shelter to stay dry in the rain or from morning dew and staying warm from night chill requires no more than plastic sheeting and rope to build a lean-two, and a space blanket to wrap in at night. Of course a knife makes building shelter easier.

7. The author added a few odds and ends to his personal survival kit such as a mini hotel sewing kit to repair damaged clothing, sample packs of antibiotic, hydrocortisone and burn-treatment ointments and a few bandages.

8. Small game such as squirrels and rabbits are easily captured with simple snares, a small amount of woodcraft and being observant while outside. The author observed a squirrel enter this stump hole, setting a snare to capture it for dinner.

9. Securing food is a large part of survival. The author's kit includes 3-square-feet of aluminum foil for cooking fish or small game, water-purification tabs for safe water, fish hooks and weights, monofilament fishing line, snares and small packets of salt and pepper.

Kept handy in a fatigue pocket they regularly served as temporary shelter when an isolated thunder-shower overtook us far from camp.

♦ **3-feet of duct tape.** Duct tape can be used to fix anything, including a rip in your lean-two shelter, or your rain gear. It can be used to fashion a splint in the event of a broken limb, an instant tourniquet to stop bleeding, a crude bandage or backing for a primitive bow. I still carry duct tape on any outdoor outing, more specifically super-tough Gorilla Tape, wrapping it around a disposable lighter for easy storage and giving me an additional source of fire.


♦ **Compact sewing kit.** You never know what you may need to sew, even in a strictly survival situation. Something like a button falling off your pants in the wilderness can turn a simple sewing kit into a real Godsend. Rip your shirt on a sharp stick. Sew it up. Very little space, so many uses.

♦ **Water-purification tabs** (modern addition). When we were kids we would simply belly down and drink straight from the same creeks we caught trout from. I don't know if I've grown soft, or more germs have been introduced to our environment, but I wouldn't think of drinking

straight out of even the most remote wilderness creek today. Today I use water-purification tabs to make safe water in my Gatorade cup. It only takes a single bout of some nasty stomach ailment (mine occurred in Alaska during a 20-day float trip with no chance of early retrieval) to disabuse you of the notion of owning a cast-iron stomach.

♦ **Few bandages, sample packs antibiotic cream.** Inevitably on our frequent summer outings someone would inflict a minor wound while pounding a lean-to stake into hard ground with a rock, skinning a rabbit or gutting a trout in the dark, just for instance. We weren't exactly living by an ideal hygiene regimen. The first-aid cream and bandages likely staved off several nasty bouts with infection.

The purest survivalists we worshipped in my youth insisted all you needed to survive was a knife. I've no doubt that's entirely possible, given enough woods craft and the right habitat. But we managed more than basic survival on those trips of our youth. We managed to live pretty comfortably and eat fairly well for a group of boys with no more gear than we could easily stuff into the pockets of military fatigues. **MP**

A photograph of a tiny house with a gabled roof, red trim, and wood siding. The house is situated in a wooded area with tall trees. A stone path leads to the house, and there is a grassy area in the foreground. A utility box is visible on the side of the house.

Sizes can be deceiving as this 425squarefoot tiny house shows. By using a second floor or loft space for storage and sleeping you can do much more than expected with what seems like a small amount of square feet. Adding patios or other outside features is also used to expand the usable space in and around the tiny house.

Tiny House Movement

IF YOU THINK YOUR HOUSE IS TOO SMALL, TRY ONE OF THESE ON FOR SIZE.

By Larry Schwartz

For a variety of reasons more and more people of all age groups are drawn to the idea of living a simpler life in a dwelling than society looks at as the norm. People who are in a transitional point in their lives seem to be those who are most drawn to the tiny house concept, or the tiny life and many refer to it. Twenty-somethings, just out of college and looking for their first place, like the idea of not joining the ranks of the house poor by tying themselves down to house and a mortgage that takes up a third of their income. Couples approaching retirement enjoy the flexibility a mobile tiny house gives them for travel and how it can help them extend their retirement income. But first, let's look at what a tiny house is and isn't.

WHAT IS A TINY HOUSE

The typical family house is approximately 2,400 square feet in size and between one and three levels. It often has a separate room for each purpose, such as eating or visiting or sleeping or hobbies, which often go unused but are still heated and furnished on a daily basis. In contrast, a tiny house is a small structure built to not be larger than is needed, making maximum use of its available space and creating spaces that can serve more than one purpose. It is often one-tenth to one-sixth the size of a normal house. They range in size from 100 to 400 square feet for a “tiny house” to 400 to 1,000 square feet for a “small house.” The key is to keep it as small as possible while meeting your needs. As a result many people who want a tiny house often go to 500 or 600 square feet because they need more space to accommodate multiple children or pets, or because they live in colder climates and clothing takes up more storage space because of its bulk and variety of items needed. The goal is to make it just big enough, but no bigger than you need.

Many people think that just because tiny homes are known for being less expensive that they are simple and plain looking. This is definitely not the case. As you can see from the accompanying pictures, you can make your tiny (or small) home as simple, fancy or decorative as you want. Many new tiny home owners bring things from their existing homes and integrate them into the design of their tiny home.

Also, your tiny house does not need to be what you would typically think of as a house. People living the tiny lifestyle have constructed their simpler, smaller homes from small houses built on trailers, railroad cars, hunter cabins, old school buses, or watercraft like houseboats or sailboats or power boats.

And although 400 square feet does not sound like much, it is more than one would think.

- A typical foot shipping container is 8' x 20' or 160 square feet
- The typical college dorm room that you lived in with a roommate is 12' x 19', or 228 square feet.
- A single-wide one bedroom modular home is 13' x 40' or 520 square feet

WHY SHOULD YOU MOVE INTO A TINY HOUSE

Many people, especially those in their 20s and 30s really like the idea of not devoting a big part of their life to maintaining a large home or don't feel the need to have a big house. They much prefer having just enough to meet their needs so they are not tied down by their house.



WIKIMEDIA.ORG

BLUEMOONRISING.ORG

(above) While tiny houses are often built on a trailer, or on a pair of trailers, due to zoning restrictions or the need to build it in one state and use it in another, once it is where you are going they can be set in place and the area around it landscaped to turn it into what looks like a permanent installation.

(opposite) Because of their growing popularity and notoriety tiny house communities, like this one of fourteen houses under construction near Deep Creek Lake in Maryland, are cropping up all over the United States.

The world of the “house poor” does not apply to them. Rather than spending their evenings and weekends keeping up the property they would rather be out doing things and exploring the world.

Others prefer to live closer to the earth and want to live a green existence in a green domicile. They much prefer to be entertained by reading a good book or watching the sun set from their porch rather than occupying their minds with what they can see on their smartphone, television, or laptop computer.

But, the biggest reason that many tiny house owners mention is the financial freedom that comes with owning and living in a tiny house. Instead of living in a house that comes with a monthly mortgage payment of \$1,000 or more their mortgage payment is more like \$100-\$200, if they even have a mortgage payment. Some tiny owners integrated utilities into their design that did not require them to draw from the power or utility grid so they don't have to pay those bills. As a result, they have the money to pursue their passions or just travel and explore their world.

“The biggest reason that many tiny house owners mention is the financial freedom that comes with owning and living in a tiny house.”



WHO SHOULD MOVE INTO A TINY HOUSE

Mimi Zeiger, author of “Tiny Houses” offers several psychological profiles of people who love and want to live in tiny spaces.

- The Walden – the minimizer, simplifier and environmentally conscious.
- The DIY – the person who wants control over everything, even building their own home
- The Cuteness – the person who just loves everything in miniature
- The Puzzler – the one who wants to jam as much functional stuff into as small a space as possible.

It definitely does take a certain kind of personality to live in a tiny house. Those who are most satisfied with their decision to live their lives simply by moving to a much smaller home:

- Like to keep things organized, or can live in an environment where everything has a place to go and everything is kept in its place.
- Don't have the need to have a bunch of possessions, rather they are satisfied with having what they need and prefer experiences over possessions.

- Have some basic skills in terms of home repairs and maintenance.
- Like things that are multitaskers or that can fold away and be stored when not in use like beds for dinner tables.
- Want to reduce their level of debt by avoiding buying large possessions and paying a large mortgage.
- Have a desire to help the environment by consuming fewer resources and by reducing their carbon footprint.
- Would rather spend their money on living life than paying bills and “keeping up with the Joneses.”

BARRIERS TO THE TINY HOUSE LIFE

Once you decide the tiny life is for you there are some challenges that you will face, three to be precise. The three main obstacles that anyone considering the tiny lifestyle and building a tiny house will need to face and overcome are:

- How to pay for it: Because a tiny home is not considered an actual home in many areas due to zoning and building codes it can be difficult to get a mortgage or loan to pay for the

COMPANIES THAT BUILD AND DESIGN TINY HOMES

The following companies have earned a good reputation in the tiny house community:

- > Tumbleweed Tiny House Company at www.TumbleweedHouses.Com
- > Dan Louche at www.TinyHomeBuilders.Com
- > Four Lights at www.FourLightsHouses.Com
- > Humble Homes at www.Humble-Homes.Com
- > Hobbitat at www.HobbitatSpaces.Com



TINYREFUGE.WORDPRESS.COM

construction, even if the amount is relatively small. As a result many new tiny home buyers or builders will dip into savings, get loans from friends and family, delay the construction until they have enough to do it all, or stretch out the construction in phases so that they can begin one phase while raising or saving they funds for the next phase.

- Where to put it: Due to zoning regulations and building codes you may not be able to just park your trailer based tiny house on a lot that you own. Or, you may not be able to set it down on the ground as a permanent structure, also due to some part of the zoning or building regulations. So, read the regulations and look at your options. Oftentimes you can make it work by just doing things slightly differently, such as putting your tiny home on a trailer or building a permanent structure to go alongside of it on the lot. Read the code and figure out what you can do to make it work, but read it before you decide to build or live there.
- Complying with local laws and regulations: Most building codes require at least one room with 120 square feet and another room with 70 square feet if it is going to be classified as a permanent dwelling. So, some of the smaller tiny house floor plans will not work. For this reason, many people opt for a floorplan of 400 or more square feet to ensure the rooms are large enough to meet the various requirements of the building code in their area. Always check with the local code as they change from location to location.

The simplicity of design found in most tiny homes makes them a natural for modular construction or pre-fabrication. This in turn makes it a good choice for someone who wants to build the house themselves.

“Everything from space under the stairs or under seating areas can be used for storage.”

DESIGN CONSIDERATIONS

The design you use for your tiny house is the most important aspect of your initial planning. It ensures that your new home will work as you want it to, or it can ensure that it fails miserably. Here are some things to keep in mind as you develop your design:

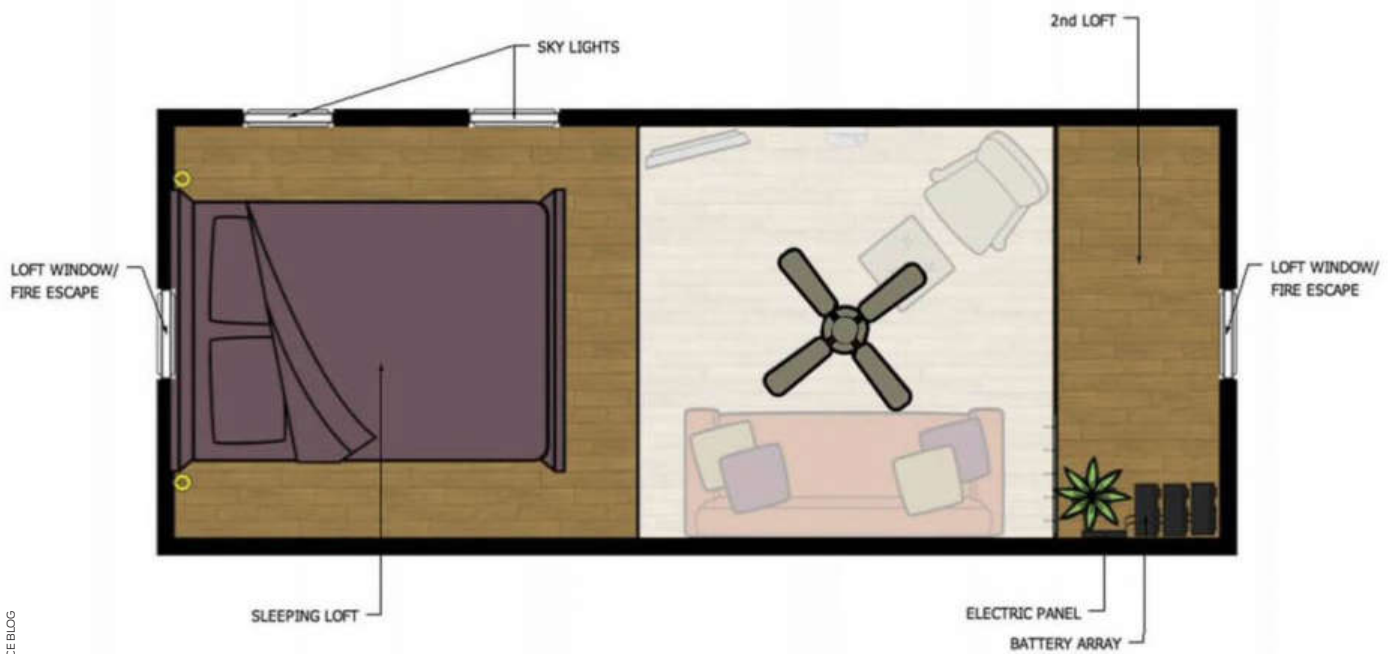
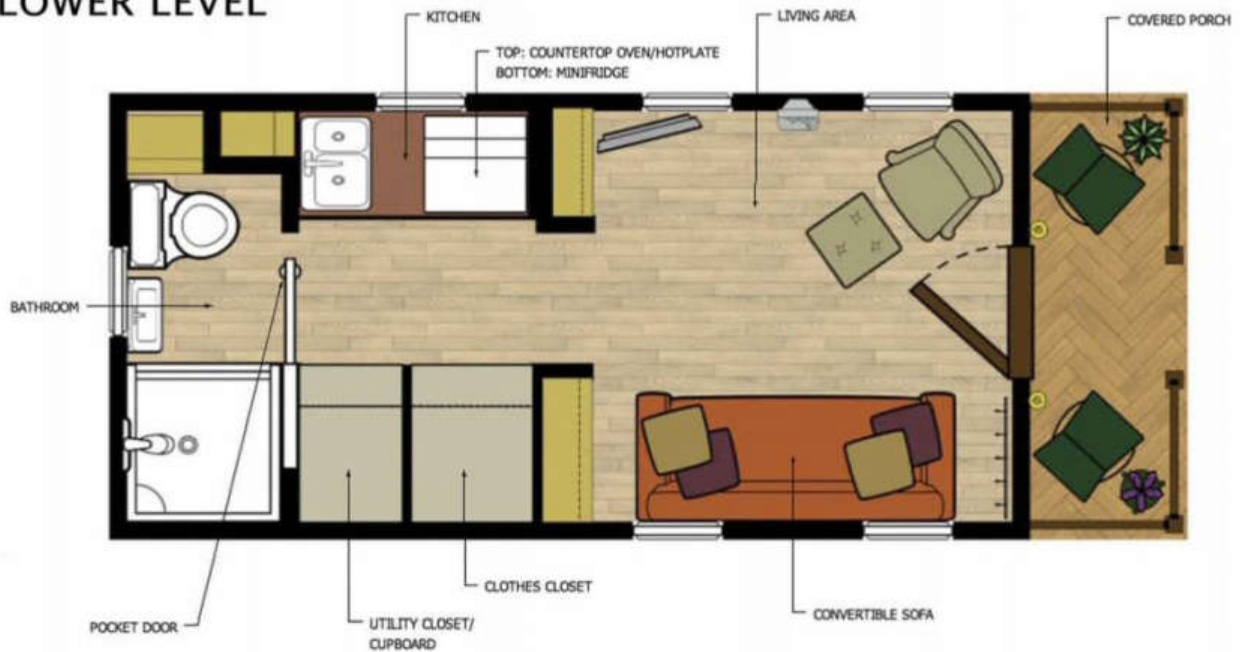
- Before you do any design work, use the 365 day rule to figure out what you really do need from all the possessions you have in your existing house. Take a week and go through every room in your current home, one room per day, and look at everything. If you have not used something in the past year then you don't need it and it should be placed in a pile for things that won't make it into the tiny house.
- Use tape on the ground to outline the outside of your floorplan and then the walls you plan to put up. This will help you visualize how much, or how little, room your design will give you and if you can work, live, and play in that space.
- Think about everything you plan to do in the house from work to play to eating to running a home-based business. Identify all the things you will need to do these activities and then figure out where you can do them and where you can store the items you need to perform the activity. This will give you a much more realistic idea of how much room you really do need.
- Make maximum use of any empty space as storage space. Everything from space under the stairs or under seating areas can be used for storage. Space along the roofline where the wall meets the ceiling can also be turned into storage areas with cabinets or shelving. Space on the walls in working areas like the kitchen or office can be fitted with cabinets or shelves or just hooks to keep frequently used items within easy reach.
- Furniture can and should be looked at in terms of how it can be moved out of the way or serve multiple purposes. For example, beds can easily be stored vertically against a wall to give more floor space during the day or stored under something else like a couch. Your dining table can fold up against the wall or fold flat for storing under something or against a dividing wall.
- Remember that you are not limited to just what can fit inside of 8.5x20 feet, you can have two buildings, or incorporate exterior decks or patios into your design.

TELLING THE STORY OF TINY HOUSES

As interest in the Tiny House Movement grew the cable television networks took notice and developed some series on tiny houses. The nice

My Tiny House Plans

LOWER LEVEL



UPPER LEVEL

thing about these series is that it gives the viewers a chance to see the wide variety of ways you can build a tiny house, the design features that you should keep in mind, and how much livable space you can incorporate into just a few hundred square feet. The descriptions below of the shows currently on the air, drawn from their websites, give you an idea of what the shows are about and of the tiny house movement.

- **Tiny House Nation**, on FYI, follows renovation experts and hosts, John Weisbarth and Zack Giffin, as they travel across America to show off ingenious small spaces and the inventive people who live in them, as well as help new families design and construct their own mini-dream home in a space no larger than 500 square feet. From a micro-apartment in New York City to a caboose car turned home in Montana to a micro-sized mobile home for road tripping – this is a series that celebrates the exploding movement of tiny homes. From pricey to budget friendly, “Tiny House Nation” is not a typical design show, but one that proves size doesn’t always matter – it’s creativity that counts.



A key to making your tiny house both successful and functional is to make use of all available space, like putting shelving in the empty space below your stairs and adding storage containers under the bed or couch.

BEARCREEBUILDERS.COM



Wall space is put to good use for storing items used on a daily basis in the kitchen. Placing a mirror on the door to the pantry provides additional functionality without using any additional space.

DISCOVERY.COM

TINYHOUSEBLOGS.COM



Just because your life is simpler does not mean that your home needs to be plain. Your tiny homes interior can be as plain or as detailed as you want.

- **Tiny House Builders**, on Home & Garden Television (HGTV), follows Derek Diedricksen who doesn't just make Tiny Houses, he creates micro masterpieces out of salvaged materials. Located in some of the world's most beautiful and at times treacherous locations, he prides himself on building the tiniest of structures that make the most of their surroundings. Viewers will follow along as this master miniature craftsman constructs paradise living in just a few hundred square feet.
- **Tiny House Hunters**, also on HGTV, follows home seekers across the country as they look to downsize, way down. They'll check out three unique streamlined houses under 600 square feet before deciding on the perfect compact kingdom to call home. When it comes to choosing one and making an offer, will they join the tiny house movement or stick with wide-open spaces? Viewers will be on the edge of their seats waiting to see what these Tiny House Hunters ultimately decide.

In addition to the television series above, Merete Mueller and Christopher Smith made a documentary called "Tiny: A Story About Living Small" that captures their journey as they developed the concept for and built their tiny house. You can download it or order it on her website at tiny-themovie.com.

So, now that we have dispelled the myth that some folks believe that the tiny life is just for commune dwellers or the anti-social, take a look at it as a real and viable alternative for how you are living now. Another way of thinking about a tiny home is like a fixed in place travel trailer that has more of the amenities of home in it but not all the work that goes with it. Think like Goldilocks as she checked things out in the Three Bears' cabin and skip the dwellings that are "much too big" or "much too small" and go with the one that is "just right" for you and your needs. **MP**

USEFUL WEBSITES

Check out these websites to learn more about the tiny house movement, what it is, where it is going, and how you can fit into it:

- www.SmallHouseSociety.Net
- www.TheTinyLife.Com
- www.TinyHouseChat.Com
- www.TinyHouseMarketplace.Com
- www.TinyHouseTalk.Com



· HOW-TO ·

Fly-Fishing Made Simple

DON'T LET FLY-FISHING INTIMIDATE YOU. HERE ARE FIVE BASIC STEPS TO LEARN THIS ART AND START CATCHING FISH.

By Darryl Quidort

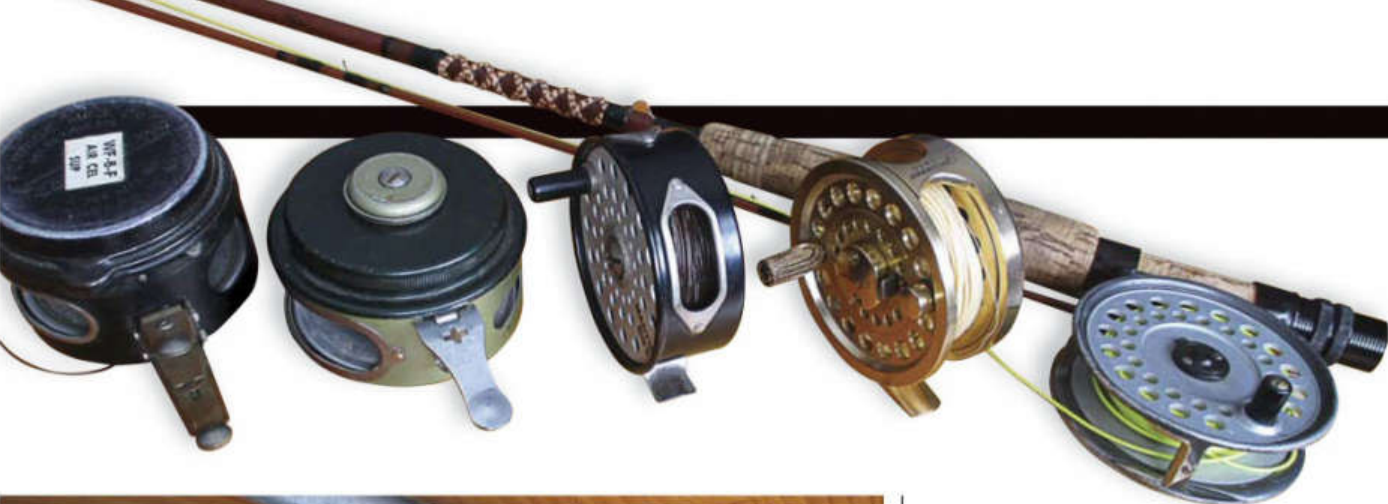
SOONER OR LATER ALMOST EVERYONE WHO ENJOYS FISHING BECOMES INTERESTED IN FLY FISHING. If you have been wanting to learn to fly fish, but didn't know where to start, this article may simplify things. Each year, many people take up the sport and find it is an effective way to catch a wide variety of fish species. In reality though, it is more than that; fly fishing involves a change from just catching fish to catching them in a more satisfying way.

Fly fishing differs from other methods of fishing and those differences may make it seem harder or mysterious. Once the basics of fly fishing are understood, the mystery is solved. Mastering the basics is surprisingly easy and, for the fisherman, it opens up a wealth of new horizons in skill, challenge and satisfaction.

The main difference between fly fishing and regular fishing is in the way the lure is delivered. In regular fishing you cast the weight of the lure and the light, monofilament line is carried out behind that momentum. A fly is too light to be cast this way. In fly fishing you cast the weight of the fly line and the fly feet of brightly colored fly line in the air, looks like poetry in motion. The secret to that poetry is in the balance of his equipment. Although skill and practice are certainly involved, it is the proper matching of the rod, reel, and line that makes fly fishing easy. Poorly matched gear makes fly casting awkward and clumsy and has caused many people to give up on fly fishing. Selecting a properly balanced fly fishing outfit is imperative. The following five steps will help you solve the mystery of choosing a proper fly fishing outfit for your type of fishing.



“Watching an experienced angler effortlessly waving his long, limber fly rod and keeping 40 feet of brightly colored fly line in the air, looks like poetry in motion.”



Know What You're Fishing For

First, ask yourself what kind of fishing you plan to do. You can then choose gear to fit your needs. An outfit balanced for panfish won't handle a big marlin. Luckily, the American Fishing Tackle Manufacturers Association (AFTMA) has taken the mystery out of matching up fly fishing equipment by using a numbering system. Fly lines are numbered from 1 to 15 by weight, with 1 being the lightest and 15 the heaviest. A heavier line requires a bigger, heavier rod to cast it. Fly rods are numbered with corresponding numbers to match the weight of line they will cast. This system makes it easy for a beginner to choose a balanced outfit to fit his needs. Generally, for trout and panfish use a lighter outfit, 4 to 6 weight; for salmon probably a 7 to 8 weight; for big saltwater fish many use heavy 10 to 12 weight gear.

(from top) The bulky automatic fly reels (left two) retrieve line with a push lever releasing a hand wound spring. The single action reels (right three) retrieve line with a hand cranking motion. • A soft cloth sleeve inside of a hard tube protects the fly rod when not in use. The lower tube protects the rod with fly reel attached. • Fly rods are marked with rod length and the AFTMA number of the fly line they are designed to cast proficiently.

Choose Your Fly Line

Yeah, I know, the rod and reel seem more important, but it's the fly line that puts your fly where the fish are, making it the most important part of the outfit. There are many different fly lines available for various fishing situations, but the two basic types of fly lines are floating and sinking. Floating lines lay on the top of the water to present the fly on, or near, the surface. Sinking lines pull the fly underwater to reach fish feeding at various depths. For beginners, I suggest a floating fly line. With a floating line you can fish dry flies on the water's surface, as well as wet flies or nymphs under a few feet of water. Fishing a fly deeper than that is a specialized process that can be learned later, as needed. A "level" fly line is the same diameter all the way to the end. A "tapered" line tapers down to a smaller diameter near the end. This makes it easier to cast because the tip of the line will roll over more smoothly and present the fly better. I suggest a tapered fly line.

Choose Your Fly Rod

Choose a rod with the same AFTMA number as your fly line. A matching rod and line are critical for casting ease, control and accuracy of placing the fly where you want it. A lightweight rod feels like a magic wand when coupled with the proper fly line. Old fly rods were once made from split bamboo, then came fiberglass. Today, most modern fly rods are made of graphite, which is extremely strong for its weight. Graphite rods can be pricey, however. Fiberglass rods usually cost less and will serve a beginner very well. A fly rod needs enough line guides to insure a smooth flow of the line through the guides when casting. Look for at least one guide for each foot of rod. An 8-foot rod should have at least 8-line guides, preferably more. Too few line guides will cause the line to loop between them and make casting more difficult. Fly rods of 7 ½ to 8 ½ feet long will generally be more versatile. Shorter and longer rods are available but are more specialized. Most fly rods disassemble into two pieces for ease of transport. The attaching ferrules should fit snug and firm. A cloth case and hard tube should be used to protect the fly rod when not in use.

Choose Your Fly Reel

Many fly rods are sold with an accompanying reel, which solves this problem for you.

Otherwise, you will need to choose from a wide variety of reels available. Again, it must be the proper size and weight to balance with your outfit. Fly reels vary from tiny 2-inch diameter spools to large, heavy saltwater reels with 6-inch spools. In its simplest form, a fly reel is basically a place to store the rest of your fly line, which isn't being used. For pan-fish, a drag system isn't needed, but for larger fish a more sophisticated reel with an adjustable drag is a benefit. Most anglers prefer a single action fly reel over the larger and heavier automatic reels. Automatic reels use a hand wound spring to retrieve the line with the push of a lever. Single action reels are cranked by hand. A single action reel has a narrow spool of fairly large diameter to which backing line is usually wound under the fly line. Building out the spool with backing line will keep the kinks out of the fly line and cause each turn of the spool to retrieve more line. Of course, a large fish might make a powerful run that pulls out the fly line and takes you into the backing.

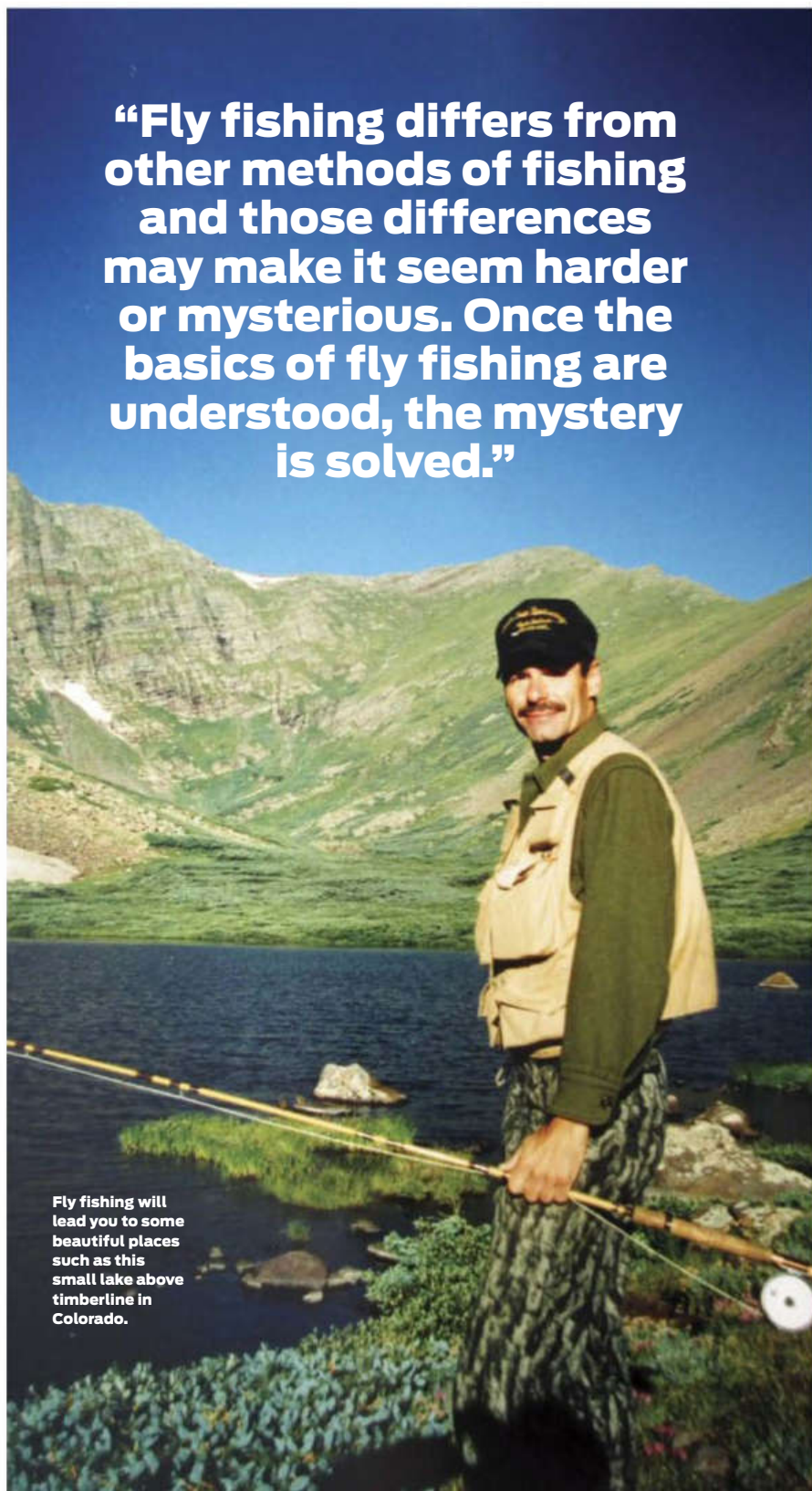
Choose Your Leader

The final part of the balanced fly fishing system is the monofilament leader that connects the fly to the fly line. Like the fly line, the best leaders are tapered for casting ease and delicate presentation of the fly. Modern, knotless, tapered leaders are made by extruding monofilament from a machine to achieve a smooth taper from the larger end, which attaches to the fly line, down to the smaller end, which attaches to the fly. Knotless leaders come in a variety of lengths, from 6-feet to 16-feet, and in a variety of diameters. For the beginner, a medium sized, 7 ½-foot leader will do well for most situations. The advanced science of leaders and tippets can be learned later, when needed, for more specialized fishing situations.

Once you have your complete fly fishing outfit assembled, all you need to begin fishing are some flies. There are thousands of patterns of fishing flies in use today, enough to confuse any angler, especially a beginner. But basically, there are only two types of flies, wet and dry.

A dry fly represents an insect floating on the surface of the water. Seeing a fish jump to take your artificial dry fly from the surface is exciting, and habit forming. Fishing with dry flies is the pinnacle of fly fishing and the reason many anglers are attracted to it. However, properly presenting a dry fly and acquiring

“Fly fishing differs from other methods of fishing and those differences may make it seem harder or mysterious. Once the basics of fly fishing are understood, the mystery is solved.”



Fly fishing will lead you to some beautiful places such as this small lake above timberline in Colorado.



The author's son, Adam, landed this nice trout on his #6 weight graphite fly rod. Lamar River, Wyoming.

CHOOSING A FLY-FISHING OUTFIT

➤ One size of fly-fishing outfit doesn't fit all. But, at the risk of disagreement, I'll make these general recommendations to help beginners choose a complete outfit to fit their needs.

TROUT AND PANFISH—Choose a 5 to 6 weight, 7½ to 8½ foot rod with a tapered, floating fly line. A medium sized, single action fly reel, without a drag system, will store the line you aren't using. With a 7½-foot, tapered monofilament leader, this outfit will cast the smaller sized flies used and will fill your needs for freshwater fishing for trout, panfish and small bass.

BASS AND SALMON—An 8½ to 9½-foot rod with matching fly line in 8 to 9 weight will handle large bass, salmon and even saltwater fishing. A weight forward fly line

will make longer casts easier and will cast a large, wind resistant, fly better. A larger sized, single action reel will balance on this heavier rod. A smooth drag system and plenty of backing will be needed to land some large fish.

My own favorite outfit for stream trout fishing and panfish in inland lakes is a 5 weight, 7½-foot long, fiberglass rod with a cork handle grip and 9 line guides that my dad built for me many years ago. A single action reel with a 3-inch diameter spool balances nicely on this custom rod. I have enjoyed fishing with this rod from northern Michigan trout streams to the big rivers of the Western States and even north of the Arctic Circle, in Alaska, for grayling. A beginner in fly fishing would do well with a similar outfit. —D.Q.

the skill to control it in way that appears natural, as it drifts with the current, takes practice and dedication, thus making dry fly fishing an enjoyable lifetime learning experience for many fishermen.

Wet flies are fished underwater. They represent aquatic life such as insects, nymphs (life stages of insects), minnows, or even crayfish. Often more and bigger fish can be taken by fishing under the water than on the water's surface. Of course, the angler can't see the fish strike under water, he has to feel it, which may take some practice.

A beginning fly fisherman won't need a box full of flies to catch fish. I suggest getting a few basic patterns of wet and dry flies and learning to fish with them. More fish are caught with fishing skill than with a "trick" fly. Your fly box will fill up as you gain experience.

Casting a fly with a fly rod is truly a marvelous thing. Entire books have been written about it. If you try to throw a fishing fly, it will probably go only a few feet because it's almost weightless. Yet, with a balanced fly fishing outfit, you can cast that same small fly 50-feet and place it exactly where you want it. Many, who haven't tried it, assume it's difficult. It's not.

“...with a balanced fly fishing outfit, you can cast that same small fly 50-feet and place it exactly where you want it.”

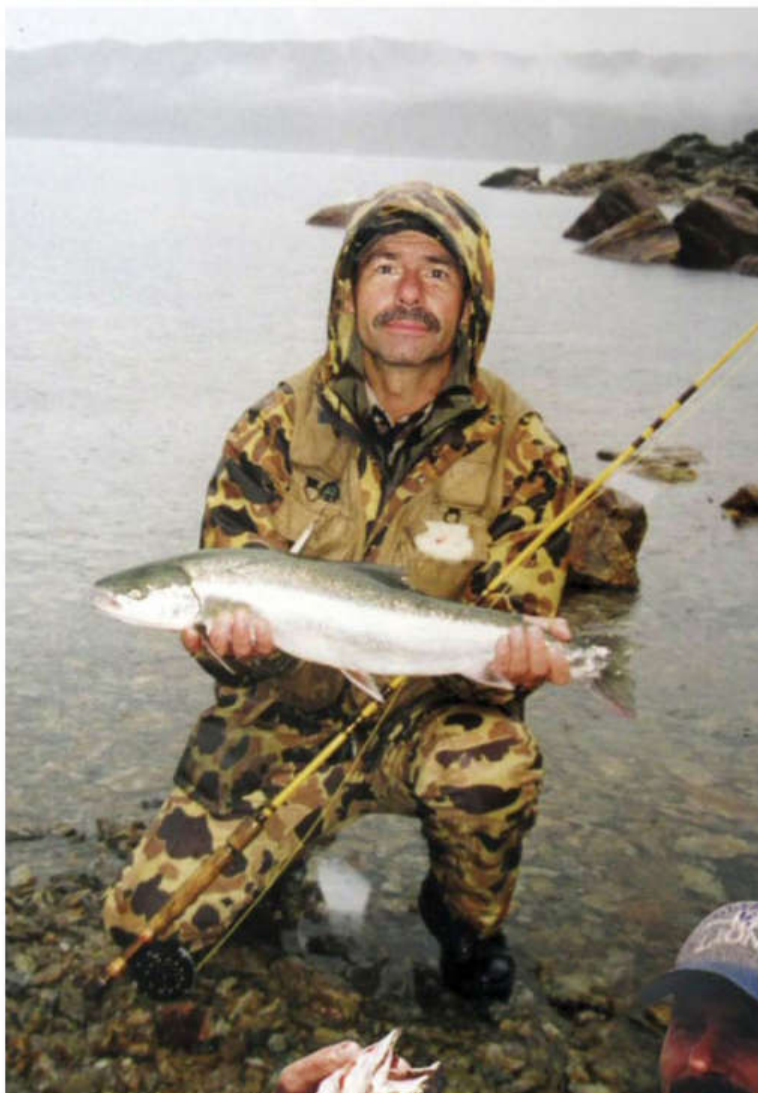
Start the basic cast with the rod down and pointed down the extended line toward the fly. The reel and line guides should be down, below the rod. A right handed person will have the rod in the right hand and the line, near the reel, in the left hand. The reel will be cranked with the left hand.

The back cast is made by locking the wrist, keeping the elbow near your side, and quickly raising the forearm to lift the rod. Accelerate the movement of the rod up and back while firmly holding the line with the left hand to keep it from sliding out through the guides. As the rod tip reaches a position straight above your head, the fly line will be coming toward you in the air. Stop the rod and let the line pass overhead and straighten out behind you. As it does, you will feel it “load” the rod. This is the pull of the line against the rod as it straightens out behind you. The rod and line are now in position for the forward cast.

The forward cast is made by starting the rod forward without extending your arm. Power the rod forward in a short arc and abruptly stop it, while still at an upward angle. The line will shoot out ahead of you. As the line straightens out, lower your arm and let the line settle gently onto the water. Learning to bring the rod to a dead stop at the end of the back cast and again at the end of the forward cast motion, is the most important part of fly casting.

There are many variations in casting which will take time and practice to learn, but you can catch fish with only the basics of fly casting and learn more as you progress. The learning curve can be shortened by purchasing an instructional DVD on fly casting. The visual instruction on the DVD will help a beginner advance faster than written instruction.

Fly fishing is a wonderful method of catching fish. In fact, when the fish are feeding on small insects it may be the only method of catching them. The challenge is ever changing and the learning never stops, thus making fly fishing a lifelong adventure. I hope this article has removed some of the mystery, but none of the magic, from this wonderful sport. **MP**



(above) This Arctic Char made a “run to the sea” that took the author’s #8 weight reel into the backing line before it could be turned around.

(left) Darryl admires a beautiful Cutthroat trout landed on a light #5 weight fly fishing outfit.





· HOW-TO ·

Do-It-Yourself Cabin

THERE'S A LOT TO KNOW BEFORE BUILDING YOUR OWN BACKCOUNTRY CABIN. HERE'S SOME INSIGHT ON HOW TO DO IT RIGHT.

By Mike Veine

FROM MY EARLIEST MEMORIES I ALWAYS WANTED TO OWN SOME REMOTE HUNTING LAND WHERE I COULD BUILD A BACKWOODS CABIN...A PLACE WHERE I COULD REALLY ENJOY NATURE AWAY FROM ALL THE NOISE AND RAT-RACE OF MODERN LIFE.

The first part of that dream came true when my wife and I bought a piece of timberland in Michigan's Upper Peninsula (U.P.) in 1995. This property teemed with all sorts of wildlife including game species such as deer, bears, grouse and more. It also has a trout stream meandering through it that adds a lot of character to the property, too. Most of the land had not been logged in more than 100 years, so a timber treatment was a high priority.

That first winter, we had about half the property logged off and they finished up with more logging the next winter with a mixture of clear cuts, strip cuts and selective harvests, all done as prescribed by our management plan. That logging process also required logging roads to be installed and we expanded on those roads and also had some food plots carved out in the process. ♦♦





(above) Here is the first phase of the author's cabin right after it was completed. When the author added on to his cabin, he did it in two parts: First he built a roof extension.

(top) A small cozy living room perfectly fits the bill. The author and his dog (Harry) are looking pretty relaxed in the cabin after a hard day of bird hunting.

The next order of business was to build a small cabin. The property came with a ramshackle trailer the past owners had used as a deer camp. It was like a mouse motel and other critters, including raccoons and skunks, also called it home from time to time. One night during our first deer season there, my father-in-law and I were awakened in the middle of the night by all sorts of growls and screeching coming from under the trailer. The ruckus was followed by the terrible skunk spray that overwhelmed our olfactory senses. We surmised that some other animal had gotten into a fight with a skunk and the resulting stench actually drove us out of the place for the duration of the trip. We were forced to sleep in our vehicles. Like I said, a new cabin was a high priority.

A check with local building codes revealed the process of building a cabin would not even require a building permit as long as the building was under a certain square footage and met other criteria for a "camp" classification. My cabin size requirement was well under the maximum square footage limit. I

have found that building codes for cabins (or camps as they are called in the U.P.) vary a lot from county to county, so it should be considered mandatory to check with those regulations before planning any building projects.

Where to Build

My property is a mixture of high and low lands. I selected a building spot that was about $\frac{1}{8}$ of a mile off the access road (two track) so it would be very private and quiet. The site was on a small ridge fairly close to the stream, but not close enough that flooding would be an issue. It was also located along the new logging road for good access.

Choosing the Right Design

The next steps in my cabin project were to decide on the construction method, design and building materials to be used. My property has a lot of white cedar on it, which would be an outstanding choice for a log cabin. I had some expertise building with framing techniques, however I had no experience with log construction. Because I could harvest the logs off

my own property though, there would be a definite cost savings with log construction, even though it would be a lot more time and labor intensive and would also require a one year drying period for the logs. On top of that, a log cabin would require more maintenance. I am a full time, Great Lakes Charter Captain during the spring and summer months, so I certainly don't have much spare time. Even though I really preferred a log cabin, I decided against that concept for practical reasons. I drew up the building plans myself for a basic 16x16-foot cabin with an open design (one room). I also planned for an 8x16-foot covered porch. The cabin was designed for easy, future expansion. The cabin would not be used for a big group of people, so there was no need to make it very large. Bunk beds work great in a cabin with the top bunks used for extra guests or for storage when not occupied. A well designed kitchen area is mandatory with a table large enough to seat the cabin's maximum occupancy. Beyond that, a sofa and some comfortable chairs are nice for relaxation. It's best to build the cabin as small and efficiently as possible to save on construction resources. A smaller cabin also heats more efficiently, too.

Construction materials for a back woods cabin should be carefully considered. My cabin's location includes lots of critters that like to chew on wood — seemingly just for the fun of it. We also have a thriving population of bears and those bruises are prone to destroy stuff just for the fun of it. I've known of several instances where bears will get up on the roof and just rip off roofing, creating a lot of damage in the process. For that reason a steel roof makes a lot of sense, as they will last for decades standing up to harshness better than anything else. I made the mistake of using asphalt roofing on my cabin roof when I first built it. I eventually replaced it with a steel roof and have had no problems. Neighbors of mine built a new cabin about the same time I built mine. They went with wood siding and every critter in the woods seemed to take a bite of it and within just a few years it was shot. I decided to sheath the exterior walls with $\frac{1}{2}$ " treated plywood and after almost 20 years, it still looks great. I didn't paint the plywood and it still looks practically new, so it makes a very good choice for sheathing over the studs of a cabin. I highly recommend using treated lumber on anything that will be exposed to the elements or where critters can easily get to it.

If you are building your cabin in an area where heavy snow falls are possible, then you will want to build an extra strong roof. In my neck of the U.P. snow can really pile up in the winter, so I built my roof to withstand up-



The front porch provides storage for firewood, an ATV and other items.

“Construction materials for a backwoods cabin should be carefully considered.”

wards of 10-feet of snow with 2x6-inch rafters, 16-inches on center.

Exterior doors should always be steel entry doors and they need to be mounted sturdy enough to keep a 500-pound bear from pushing through. The cabin should have plenty of quality, double pane windows to let in light during the day and for good ventilation during warm weather. That was another mistake I made when I built my cabin — not enough windows and I had to install a couple more later to brighten things up and to improve ventilation. All windows should be covered with shutters to keep the critters at bay. Mine are simple affairs made from the same treated plywood as the exterior sheathing. I also cut vent holes in my shutters and installed steel screens over the holes. This allows me to open up my windows when I'm away and get some air flow through the place. This helps prevent that moldy, mildew smell from setting in during layups. I also installed awnings over the exposed windows so they can stay open without water getting in when it rains.



How to Heat

A heat source needs to be planned into the cabin and I highly favor a wood stove for that task. I enjoy cutting fire wood and on my property I have virtually an unlimited supply. I also have a backup, vent-free propane heater that I run off a 20-pound tank. I don't use that propane heater much, but when it is a bit chilly, but not cold enough to fire up the wood burner, it is nice to have. The cabin is insulated with R-14 for the walls and R-25 in the ceiling. With a wood stove though, the insulation does not need to be much for a warm living space.

I also have a three-burner, camping style, propane cook stove in the kitchen area. A propane gas grill also gets a lot of use and mine has a side burner which I use to cook stinky stuff like fried fish outside. To round out my use of propane, I have some propane gas lighting inside. My main lighting though is 12 volt, 3 watt, LED bulbs. I have the entire cabin wired for 12 volt lighting and the lights just have pull cord switches for simplicity. Power is provided by one or more deep cycle batteries and I have a solar panel rigged to a charge controller to keep the batteries charged. A cigarette lighter power bank was installed so I can simultaneously charge my cell phone, play a radio/CD player and also run a cell phone booster, which is necessary in my neck of the woods.. I had to run the booster antenna 50' up a tree with a coax cable also.



(above, left) **The bedroom that was added is not big, but it does provide a comfortable sleeping quarters.**

(above, right) **The kitchen area is simple, but efficient. Bunk beds are a great way to maximize sleeping capacity while saving space. When not used for sleeping, the bunk beds make great storage spaces.**

When I first built my cabin I never worried much about outside communications, but now, 20 years later, I do deem it necessary just for safety's sake.

My Own Cabin

In the spring of 1998, my retired father-in-law and I packed up my truck and headed to the U.P. to build the cabin. We allotted two weeks to complete the project. We had a bulldozer clear and level the building site when they were putting in the logging roads, so the site was accessible for even a big truck. I contacted a local lumber yard in advance and ordered most of the building materials we would need and scheduled it to be delivered the morning after we arrived. If it's a big enough order, most lumber yards will deliver for free.

The first day on the job we built the floor set on pre-made, cement pillars. The floor joists were 2x6s supported midway and the flooring was ¾-inch plywood. It only took us a half day to complete the floor. After we ap-

plied floor paint to the plywood, we decided to go fishing while it dried.

My father-in-law really enjoyed helping me out with this cabin project, but since he was elderly, I purposely did not want to overdo it on the building project. We only worked about half the day on the cabin, then did a lot of easy fishing or relaxing so there was minimal stress and plenty of fun. We still managed to complete the entire cabin in less than two weeks. The total cost of the original cabin project was about \$2,000 in 1995, but it would perhaps be twice that cost with today's building material prices.

Adding Details

In 2005 I decided to build an addition onto the cabin. I extended the roof out 10-feet and added a bedroom, some additional storage space, a storage shed and a wood shed. I also installed a shower. I have no running water, so I just haul my drinking water from home in five-gallon jugs. For wash water, I collect rain in a barrel from gutters. The water is then filtered into that barrel and then filtered again when it is transferred into another barrel inside the cabin. The shower is just a simple, gravity fed style. I had one of those bag type, solar showers. I used the hose and just epoxied it through a hole drilled in a plastic bucket for a water tight seal. I either heat water by placing a black bucket in the sun for a while, or on the stove or wood stove, then pour it into the shower bucket, which is then put on a shelf in the shower stall. Presto, a hot shower. If I don't have any rain water available, I can always get water from the stream for washing. At one time I tried to pound a sand point well down, but solid rock 10-feet below the surface of my property made that a futile effort.

Maintenance of my cabin is minimal. The only painting I have to do is on the floor. I also cut firewood when needed and clean the flue annually. Yard work consists of mowing the tiny yard with a weed whacker and cutting back brush and trees when necessary. I spray several times a year with 10-percent Permethrin insecticide, which keeps the bugs under control. My area has a lot of carpenter ants, which can be very destructive, so an annual dose of Termidor insecticide around the perimeter of the cabin and by the fire wood piles is also a good preventative.

PORTABLE CABIN FOR PUBLIC-LAND USE

> In 1999, I was guiding ice fishermen on Little Bay De Noc when I met Mark Walters, an adventurous outdoor writer from Wisconsin. He was backpacking out onto the ice with just his golden retrievers for company. He tent camped there miles from shore through sub zero weather. The next year he showed up at the same spot, but with a portable cabin that could be erected on the ice. That cabin was an 8' x 27' structure made with panels that screwed together. It had 2" x 3" framing with heavy plastic sheathing on the outside and foam insulation inside. Heated with a vent-free propane heater, it was warm and cozy. He also used that same portable cabin for a deer camp for five falls on public lands in multiple states hauling the lightweight structure in a trailer behind a small SUV.

With a growing hunting group, in 2006 Walters built a new portable deer camp that measures 26' x 38" and sleeps 25 people. It is assembled from 6' panels. The exterior is steel panels, the type used in pole barn construction. It has ½" foam insulation. The roof has trusses covered in two layers of heavy, plastic sheathing. The floor is just a roll of old carpet laid right over the ground. The place is heated by two wood stoves. Cooking and lighting are fired by propane. It takes his crew about six hours to set up camp, which also includes cutting fire. All the panels are screwed together and bunk beds line the walls. This portable cabin is hauled in a very large trailer with the sundries being transported in other trailers and pickup truck beds.



THIS IS ONE OF MANY NICE DEER THE AUTHOR HAS TAKEN WHILE HUNTING NEAR HIS U.P. CABIN.

When the cabin is not in use, nothing of value is left there to attract thieves. The door is also never locked either because thieves will just break it down anyway. I carry insurance on the place for peace of mind and also have surveillance cameras (game cameras) set up strategically to help catch any would-be trespassers. In the boondocks, though, there will always be some people that have no respect for private property. I've had my cabin illegally entered before but they have never found anything worth taking so they never came back.

In the future I plan to build a large, storage building so I can buy a tractor for food plot work. That will likely be after I retire, though, which is some years down the road.

The one thing I love about having hunting land and a cabin is that you always have plenty of fun projects to plan and work on. When your dream comes true, you can still improve upon it. **MP**



“It is estimated that more than 60 percent of the crawfish that enter older model traps, without escape stoppers, could escape.”

· GENERAL ·

Learning to Catch Crawfish: Not Just a Southern Thing

HOW TO SUCCESSFULLY FIND AND TRAP THESE TASTY BOTTOM DWELLERS.

By Jason Houser

THERE ARE MANY WAYS TO CATCH THESE UNDERSIZED LOBSTERS. But, through trial and error, the most efficient method for catching crawfish has surfaced. Take heed of these words and you'll be pulling in loads of these crustaceans from any of your local rivers or streams.

Choose Your Trap

One of the best ways to catch crawfish is with a closed trap. The most common style is the tubular trap made of coiled wire on which netting has been stretched. This trap has a funnel opening at each end through which the crayfish can enter. The biggest problem with this type of trap is that crawfish can escape after they have eaten all the bait. Try checking it every three hours or so to avoid losing crawfish you had caught.

Some crawfish trap manufacturers are now coming out with traps that will prevent crawfish from escaping after they have had their fill of bait. It is estimated that more than 60 percent of the crawfish that enter older model traps, without escape stoppers, could escape.

The best traps are tubular in shape and have a bait box that will entice the little critters to enter your trap. Traps with flat bottoms have a tendency to get snagged, and it is possible to lose a trap that is caught on a rocky bottom.

It is best if you can drop your traps straight down from a boat or dock. Throwing the trap out from the bank will catch crawfish, but the likelihood of getting the trap caught on rocks and other debris is too great. You run a good chance of losing the trap doing this.

Crayfish trapping isn't just a Southern thing. There are three important factors for successful crawfish trapping — a good crayfish trap, good bait, and knowing where your prey likes to hide.



“Crayfish” derives from the Old French word, *escrevisse*. Depending where you go, they’re also known as lobsters, crawdads, mudbugs and yabbies.

Choose Your Bait

To catch lots of crayfish, you need a good, productive, crayfish trap. But without bait, even the best trap isn’t much good. To catch crawfish, you need bait. That’s a simple and accurate statement. Here comes the difficult question. What kind?

The most common bait for crawfish traps is fish. Sunfish, shiners, shad, gizzards, and miscellaneous fish trimmings all make good bait. Chicken parts even make good bait if you can find them cheap enough. Sometimes you can get scraps for free from the meat cutter.

Crayfish bait must be fresh. Contrary to some people’s opinions, crayfish don’t like spoiled, smelly or sour bait, be it fish or meat. Even meat or fish that has been frozen, and thawed out to use is not going to result in a large catch.

The more bait you put in a trap, the more crayfish you will catch. Many crayfish traps have some kind of an escape stopper, and some are better than others. As long as a trap has good bait in it, crayfish that have already entered the trap will stay there while new crayfish will still enter. Keep your traps filled with good bait, and you will catch more crayfish.

When the water temperature is below 70°F, manufactured bait is not very productive. During the cold months, fish bait is better, but after lakes warm up, manufactured bait is often even more productive. Many companies, including Purina, sell manufactured bait for crawfish as well.

Always use a bait container when using bait. Simply placing the bait on the bottom of the trap is an open invitation to all the crayfish in the area to come for a free meal. They will poke and prod from outside the trap until all the bait is gone, and you will end up with very few crawfish in your trap.



(above) A basic tubular trap makes it quite easy for crayfish to escape after feeding, but a good bait box, adequate amounts of bait, and escape stoppers should help prevent ‘dine and dashers.’



(left) These guys are often the bait for bigger catches like channel catfish, walleye, trout, largemouth bass, smallmouth bass, pike and muskellunge. Removing the claws means the crayfish won’t stop fish from biting the hook. They fall off the hook easy, so cast slowly.

“Crayfish bait must be fresh. Contrary to some people’s opinions, crayfish don’t like spoiled, smelly or sour bait, be it fish or meat.”

LOUISIANA CRAWFISH BOIL

1 tablespoon whole black peppercorns
1 tablespoon whole coriander seeds
2 tablespoons whole cloves
1½ tablespoons whole allspice
5 gallons water
1 pound kosher salt
4 tablespoons cayenne pepper
2 tablespoons garlic powder
2 tablespoons paprika
1 tablespoon onion powder
1 tablespoon dried thyme
1 tablespoon dried oregano
1 tablespoon dry mustard
1 tablespoon dried dill weed
6 bay leaves, crumbled
10 pounds live crawfish
3 pounds small red potatoes, cut in 1/2, if larger than 2-inches in diameter
8 ears corn, halved
2 heads garlic, unpeeled, but separated
1 pound andouille sausage, cut into 1-inch pieces

Place the peppercorns, coriander, clove, and allspice into a spice grinder and grind for 10 to 15 seconds.

Fill a 40-quart pot with five gallons of water and add the freshly ground spices, salt, cayenne pepper, garlic powder, paprika, onion powder, thyme, oregano, dry mustard, dill weed, and bay leaves. Cover and bring to a boil over high heat, approximately 40 minutes.

Rinse the crawfish thoroughly in the bag in which they arrived to remove excess dirt and mud. Put the crawfish in a large container and fill with cool water. Stir to remove dirt from the crawfish. Transfer small batches of crawfish to a colander and rinse under cool running water. Pick out any debris or dead crawfish. Once all crawfish have been rinsed, discard dirty water, and return the crawfish to the container. Repeat this process six to eight times, or until the water is clear.

Once the seasoned water comes to a boil, add the potatoes, corn, garlic, and sausage. Cover and cook for 10 minutes.

Add the crawfish, cover, and cook for three minutes. Turn off the heat and allow the pot to sit, covered, for 10 minutes. Drain well and serve immediately.



Like other crustaceans, with crayfish, only a small portion of the body is eaten. You'll find the most meat in the tail (such as in bisques and soups) and the claw.

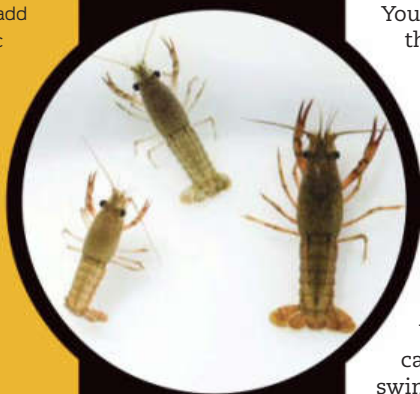
Know Your Target

Rivers and brooks are the main living habitats for the crayfish due to their water clarity and thin ice conditions. Humans will rarely see crayfish during the day but if you shine a flashlight in the water at dark, it's a whole different story. These guys do their traveling and feeding during the darkest hours of the night.

You will see them walking ever so slow to their destinations, but when danger arises, they flap their strong tail and are gone in the blink of an eye.

Freezing water conditions are enough to destroy crayfish habitat and that's a main reason they thrive in rivers of moving water. During the day, they nestle underneath rocks and hide from predators. Crayfish are on the feeding menu of a lot of larger animals— fish, birds, and more. During the battle of eating, the crayfish actually escape quite often due to their very fast swim speeds. With one snap of their very strong rear tail, they're nowhere to be found by predators.

Catching and enjoying crawfish is routinely thought of as a southern tradition. That is not the case. There are plenty of crawfish to catch just about everywhere in America. They taste just as good throughout the United States as they do in Louisiana. **MP**



If you don't feel like eating it, you can always keep your crayfish as a pet in a freshwater aquarium. Shrimp pellets and various vegetables are their favorite snacks, but believe it or not, they'll even eat their old exoskeletons after they shed them.

· GENERAL ·



IF YOU WANT A TOP-NOTCH, CUSTOM-QUALITY KNIFE FOR ABOUT \$50, THEN FOLLOW THESE STEPS.

By Charles Witosky

HIGH-QUALITY KNIVES ARE AN EXPENSIVE BUT NECESSARY TOOL. FROM HUNTING TO CARVING TO COOKING, YOU NEED A KNIFE TO SURVIVE.

If you want to cut down on costs but still have a knife that will do the trick, consider making your own. Using the tools and materials around you, you can forge your own knife that will last as long and work just as well as any knife you can buy. Here's how to do it.

Custom Knife in 15 Steps

PHOTO BY THINKSTOCK

STEP 1

Pick a Knife Template

We found ours online. If you want to trace the outline of a knife you already own onto a piece of paper, that will work, too. While picking your knife template may be one of the easiest parts of making a knife, it's also the most important. You must make sure that you're picking the knife that is best suited to your purposes. Are you using the knife to carve? To hunt? As a handy tool? There are so many different kinds of knives, it's imperative that you pick the right template.

The knife template pictured in figure 1.1 is for the Becker BK2, a very popular survival knife. The most popular model is made by Ka-Bar.

Other survival knives that you might consider choosing are the SEAL Team Knife, known for its intense durability, the SRK (Survival Rescue Knife), and the A1 Swedish Survival Knife. In this article we will be working with the Becker BK2 as it is a good knife to make if you've never made one before. It is extremely durable and has great edge retention.

STEP 2

Cut Out Template

Make your cut as on the line as possible without going over it. Either scissors or an X-ACTO knife will work, just make sure you're being precise. This is the outline for your final product.

STEP 3

Glue Template

Any type of wood is acceptable. We used a $\frac{1}{8}$ inch sheet of cedar plywood. It's not very heavy or strong so it was easy to cut into. Glue your template onto the wood so that the top edge of the template lines up with the top edge of the wood. This isn't a requirement, but it gives you one already straight edge.

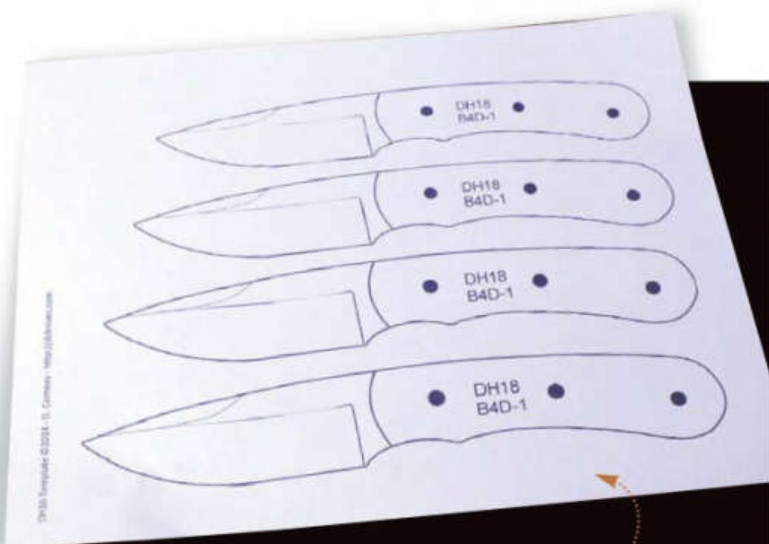
STEP 4

Cut Out Wood Template

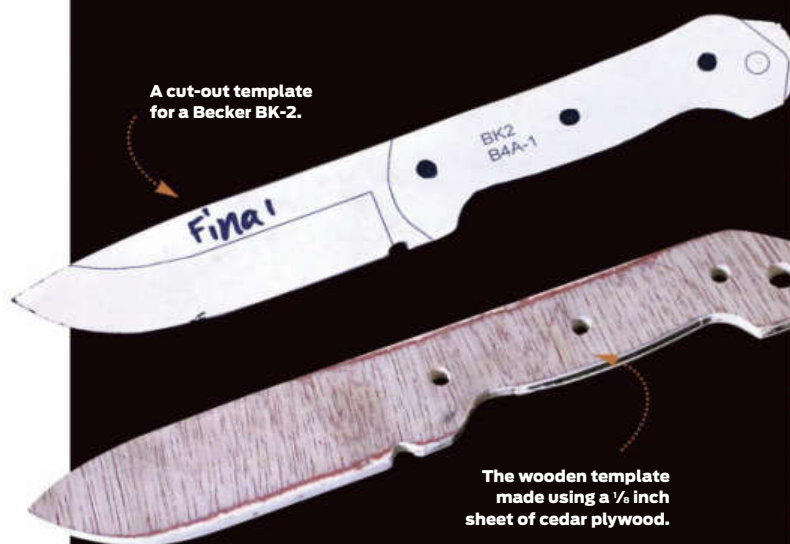
To do this, we used three different tools, only two of which are a requirement, those being a saw and sandpaper. We used a coping saw, a bench grinder (fig 1.5), and a sheet of 150-grit sandpaper.

First, use your saw to make a rough cut of your knife in the wood, just getting the general shape of your knife down. If you cut into any part of the glued-on paper, you've gone too far. Then go in with a bench grinder (if you have access to one) to finely cut out the curves of the knife. Sand paper will also do the job, it just takes longer. After we used the bench grinder, we still used the sandpaper to make our cut-out as smooth as possible. Keep the template glued on top, because you still have to cut holes in the handle.

To cut the holes in the handle of the blade, we used a drill press (fig 1.8) but you can use anything that will drill a clean hole. Drill right through the holes pictured on your paper template. After that, remove your paper template.



One of many templates you can use to base your knife off of.



A cut-out template for a Becker BK-2.

The wooden template made using a $\frac{1}{8}$ inch sheet of cedar plywood.

“While picking your knife template may be one of the easiest parts of making a knife, it’s also the most important.”

STEP 5

Pick Your Steel

O1 Tool Steel is the steel pictured in figure 1.4. We decided to use this steel because of how easy it is to work with. It's very easy to cut into, and when it has been heat treated and tempered correctly, it will last forever. We bought a new bar of steel at a hardware store, but if you have an old saw blade or a file that you no longer use, you can cut a knife out of that. Both of those tools are made with O1 Tool Steel. The only problem with using recycled steel is that saw blades and files have already been heat treated. This will make them much harder to cut into. Otherwise, they work just as well.

Other kinds of popular knife steels are 421 High Carbon Steel, H1 Steel, and Damascus Steel. 421 High Carbon Steel is good to use because of its high carbon content, which is what makes the knife hard and durable. H1 Steel is saltwater resistant, which is good if you're using this knife to clean fish or out at sea in any capacity. Navy SEAL Team Knives are made out of H1 Steel.

Any of these will make a solid knife, but if this is your first knife it's recommended you use O1 Tool Steel if for no reason other than its low price. If you mess up with one bar, you can easily get another. Other steels can be incredibly expensive.

STEP 6

Trace Template to Steel

A sharpie will work, but we used a paint marker because the paint wouldn't melt when we cut our blank. Line up the top of your wooden template

with the top of your steel bar and trace around the perimeter.

STEP 7

Cut Your Blank

From here on until you've beveled your metal so that it has a blade, it will be referred to as a blank. Use a hack saw to rough cut all the angles. Cut all of the angles a few centimeters from your drawn outline. Make your cuts as straight as possible.

To cut your final blank, you will need a power tool. Human hands can't work quickly or precisely enough to cut as accurately as you need to cut a functional knife. The ideal tool is a bench grinder (fig 1.5), but a dremel with a drum sander (fig 1.12) will also work. Use either one of these tools and grind until you have the right curves, straight edges, and fine points that you want. The blank will not be sharp, but this is where you really get to make the knife your own. Work on it until you're happy with it, but don't grind past the lines you've marked.

STEP 8

Mark and Punch Holes

Place your wooden template on top of your cut blank, this time using each edge to check that your steel blank has the same dimensions as your wooden template. Then take a steel punch, nail setter, or very thin Phillips head screw driver and place the tip inside of the holes on your wooden template, resting it on the steel underneath. Use a hammer to hit the back end of whatever tool you're using to mark a small divot in the metal. Repeat on the other two holes.

A bar of O1 Tool Steel. Roughly \$20 at any hardware store.



Bench grinding the bar of steel into shape.



The completely cut and sanded blank.



Sharpie marks for where you will drill holes.



Using a drill press to drill holes in the blank.



A bevel jig, used to hold a file at the correct angle while beveling.



Power grinding material from the blank.



Beveling the blank down to an even edge.



Using a dremmel with a drum sander to do detail work on the blade.

Once you've created each divot, remove the template and use a regular black sharpie to mark where each divot is. It should look like figure 1.7.

The reason that you're marking where the holes are not only helps you know where to drill the holes in your blank, but because the divots will center the drill when you do the drilling, ensuring you have three perfect holes.

Punch Holes: We used a drill press, as shown in figure 1.8, but a handheld power drill will also do the trick. Make sure that you're drilling at a 90 degree angle, otherwise you'll have slanted holes, which will cause problems later on.

STEP 9

Bevel the Blank

Or in other words, create the blade. This is not where the blank becomes functional or even particularly sharp, but after this step you can begin calling it a knife instead of a blank.

The first step in this process is to secure your blank to a flat, even surface. It must be wood and you must be okay with drilling holes in this surface. Having a designated workbench will come in handy during this step.

Start by securing a thick piece of wood to your workbench. Then secure your blank to that piece of wood by drilling screws through the holes in your blank.

At this point, you can either use a power tool such as small power grinder like the one pictured in figure 1.10, or you can spend a few hours using a file to grind away at your blank. You're going to end up using a file either way for the more detailed beveling, but the process will go

much faster if you begin with a power tool.

When beginning with a power tool, hold the tool at a 45 degree angle to the blank, put the edge of the tool halfway up the blade and press down lightly. Don't go too quickly or focus on one area for too long or you run the risk of having a wavy edge with inconsistent thickness. Try to create an even, angled plane. When your blade is about $\frac{3}{4}$ th of an inch thick, flip the blank over and repeat the same process on that side.

If you're beginning with a file, the same principles apply but you don't run the risk of grinding away too much material too quickly. If you are using a file, a bevel jig, shown in figure 1.11, will help enormously. A bevel jig is a tool that will hold your file in place and at the correct angle so that all you have to worry about is moving the file back and forth.

Once you have the blank at $\frac{1}{2}$ nd of an inch, grind it once or twice more with the file to make it as smooth as possible, then stop. If it gets any thinner than this, you run the risk of having the metal warp when it's in the fire. Use your dremmel with a drum sander (fig 1.12) or a sheet of sandpaper to take off any excess splinters of metal. Take the blank off of the block of wood and admire what you now have – a knife.

STEP 10**Prepare the Quench Bath**

You're preparing this for after you heat your knife to 1,500 degrees F. For this, find a flame-resistant can that is as tall as your knife or taller. Acquire used motor oil from either a vehicle or a nearby repair shop. Any type of motor oil, other than synthetic oil, will work so long as it has been used for long enough. If the motor oil is not black, find another batch. Empty the oil into your can. Also grab some sort of flat metal surface that can lay on top of the can, should a fire result from you putting the heated knife inside the oil.

STEP 11**Heat the Knife**

Start by creating a contained fire. You must use charcoal in the fire because firewood alone will not get hot enough to heat the knife to the temperature you need.

Hang your knife on a long piece of baling wire and tie off the baling wire at the end. You can see the baling wire sticking out of the fire in figure 1.14. Bury the knife under as much charcoal and firewood as possible. You can now either wait for the fire to heat your knife on its own or take a blower of some kind and direct it at the fire, away from any serious fire hazards. Also remember to wear fire resistant gloves when handling anything around fire.

Check on the knife occasionally. When the knife has become cherry red, like in figure 1.15, it's hot enough. Another way to check that it's ready to be dunked is by holding a magnet up to it. If the knife does not magnetize itself

to the magnet, it is hot enough. Use the baling wire to pull the knife out of the fire.

STEP 12**Put It in Oil**

Once it's hot enough, immediately dunk the knife into the oil and keep it there for 15 seconds. This is to increase the carbon content in the knife, making it much more durable than it would be without the oil. In case the knife starts a fire in the oil, immediately lay the flat metal pan you have ready on top of the can.

STEP 13**Cool the Knife**

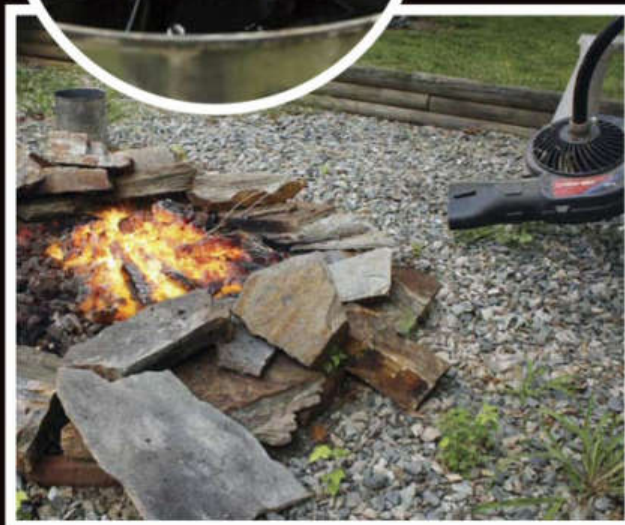
After the 15 seconds, pull the knife out and softly lay it down on a flat surface. Be very careful with it, as if you drop the knife on a hard surface at this point, it would shatter. Wait until the knife is at room temperature (test by touching it, it's even safe to touch immediately after the oil bath) and dry it off. It should look like our knife, pictured in figure 1.17.

At this point you have a decision to make. Do you want your knife to be harder but have low edge retention, meaning it might go dull rather quickly. Or do you want to sacrifice some hardness for more edge retention? Make your decision, then proceed accordingly. The process for either choice is the same, the only thing that changes is how many times you repeat the process.

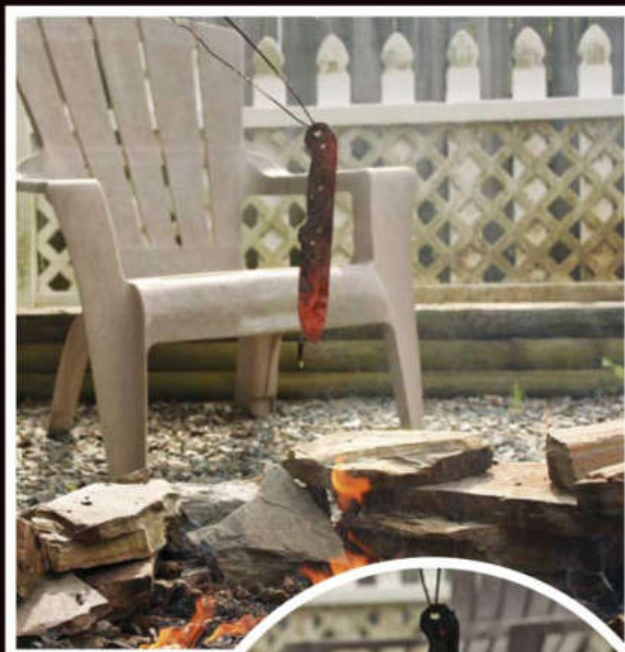
Begin by preheating your oven to 400 degrees F. Put your knife in any pan you would use to bake with. Put the pan on a middle rack and keep the knife in the oven for one hour. After that hour, turn the oven off but leave the knife



Pouring used motor oil into a fire-resistant can.



Fanning the fire to heat the knife up faster.



The cherry red knife, ready to be dunked in oil.



Fresh out of the quench bath.

The knife once it has been dried off.

Using the whetstone to sharpen the blade, post tempering.

in the oven and don't open the oven door. Let the knife cool for one hour.

If you want a harder knife with lower edge retention, repeat this process 2-4 more times. If you want a less hard knife with more edge retention, repeat the heating and cooling process only one more time.

STEP 14

Sharpen the Knife

For this, you can use either a regular knife sharpener, or if you want an ultra sharp blade, a whetstone and a finishing stone. These two stones are regularly sold together.

To sharpen with the knife sharpener, drag only the edge across the sharpener for as long as you can.

If sharpening with the sharpening stones, start with the whetstone. Hold the blade to the stone at a 45 degree angle and push forward, starting with the tip. Do this for 20 minutes or longer, then switch to the finishing stone.

STEP 15

Craft and Wrap Handle

If you want to wrap the blade with leather and

epoxy, that is perfectly acceptable. If you want to make a more comfortable handle, start with picking a material. The most popular handles are made out of hard wood. Popular hard woods include mahogany, oak, and cherry. These will not easily break.

Take two pieces of wood, each about 3/8th of an inch thick. Lay one piece down on your workbench and lay the knife (handle) on top of that. Align the top edge of the knife up with the top edge of the wood. Use a sharpie to draw a point inside the holes of the handle on the wood. Remove the knife from the piece of wood.

Place the piece of wood that you have not used down on your workbench. Lay the piece of wood that you have marked on top of that piece of wood with the marked side facing up so that you can see the marks. Use either a drill press or a drill to drill where your marks are, through both pieces of wood.

Take the two pieces of wood apart and paint one side of each piece of wood with a strong epoxy.

Lay your knife on one of the pieces of wood so that the piece of wood covers no more than the handle. Take your knife pins, which can be purchased anywhere knives are sold, paint each one with your epoxy and push it through the hole in the wood of the piece that is attached to the knife until the top, flat part of the pin is flush with the outside of the piece of the wood. Repeat this process for the other side.

Let your handle set and dry for a few hours or until you're sure the wood is not moving around on the knife. Then use a saw of any kind to cut off the excess wood that is not covering the knife. You don't need to be too precise because you'll be wrapping the handle.

Wrapping the handle is simple. Paint the inside of a long strip of leather with an epoxy and wrap it around your knife until the wood is completely covered. Let the knife sit for four hours. **MF**

Finished.

SUPPLY LIST

- ✓ A flat surface you're comfortable drilling into.
- ✓ Paper Knife Template
- ✓ X-ACTO Knife
- ✓ 1/8 Inch Sheet of Cedar Plywood
- ✓ Craft Glue
- ✓ Hack Saw
- ✓ 150 Grit Sandpaper
- ✓ Bench Grinder
- ✓ Drill or Drill Press
- ✓ Bar of Steel
- ✓ Sharpie or Paint Marker
- ✓ Steel Punch, Nail setter, or a thin Phillips Head Screw Driver
- ✓ Hammer
- ✓ Metal File
- ✓ Used Motor Oil
- ✓ Baling Wire
- ✓ Fire
- ✓ Oven
- ✓ Knife Sharpener or Sharpening Stone
- ✓ Epoxy
- ✓ Knife Pins
- ✓ Two 3/8 Inch Thick Sheets of Mahogany, Oak, or Cherry Wood
- ✓ Leather
- ✓ Dremmel with a Drum Sander (optional)
- ✓ Power Grinder (optional)
- ✓ Bevel Jig (optional)
- ✓ Leaf Blower (optional)

Author's note: I wanted to thank Barrett Rokuskie for his help in the creation of this article.

· HUNTING ·

Super Turkey Gun

THIS NEW 20-GAUGE
FLINTLOCK SHOTGUN CAN
BRING HOME A BIG BIRD.

By Mike Yancey

THE THOUGHT OF “GOING DOWN” IN GUN IS NOT A COMMON BEHAVIOR IN THIS FAST PACED LIFE. BLACK GUNS AND LONG DISTANCE SET-UPS SEEM TO BE THE NORM RATHER THAN THE EXCEPTION.

Black powder and flintlocks are nothing new for me, but a 20-gauge shotgun with a flintlock ignition is. It wasn't the flintlock that had me worried, but the small 20-gauge muzzle that held my concern. I have hunted for several springs now with a Danny Caywood custom made 12-gauge fowler, a gun that has served me well over the years on both fowl and big game, while using a 69 caliber ball from the same jug choked barrel. ➡



**Author with
20-gauge
flintlock
shotgun and
turkey taken
with it in
Texas.**

The Details

I had been hearing talk of a new extreme turkey choked 20-gauge barrel made by the Colerain Barrel Co. that reports remarkable results using this custom produced special purpose barrel. The barrel comes in two lengths, 44" and 38" with a .620 bore that goes to a .580 at the muzzle. With the extreme barrel reduction, this barrel is a turkey gun using shot only, with front and rear rifle sights a must. The pattern out of this barrel is like sending a deadly volleyball sized wad of #6 shot to 40-yards. I have not shot past this distance but have shot on paper and have taken a bird at that distance and know that at closer range you better be holding steady because these barrels send out a tight-devastating load of lead.

I came about my flintlock second hand, made by Joe Schell of Illinois. Built on a Lancaster rifle style curly maple stock with sliding wooden patch box and iron furniture. Once in my hands, I went to pounding targets with it and experimenting with different loads at various distances. Originally bought for my wife so she could flintlock hunt with me on spring turkey hunts, I quickly fell in love with the gun and its ability as an up and coming slayer of long spurred turkeys. I knew that it was just a matter of time before I ordered the parts to build one for myself. If there were drawbacks or disadvantages to this gun it would be that it is a shotgun only, you can't shoot round ball from it. That and that alone is the only thing I see wrong with it and that's no problem either, it's just a good reason to have more flintlocks.

Deadlier than a Modern 12-gauge

I took this gun to Texas, this spring, to test it out on Rio Grande Turkeys where, often times, you have longer than usual shots at turkeys because of the general lay of the land with its wide open spaces. The gun performed perfectly on a large mature Texas longbeard, doing its job on a full 40-yard shot, anchoring the bird in his tracks, without a doubt down for the count at what I would consider to be the max or beyond for most flintlock shotguns.

To support my claim that this is the most deadly turkey gun that I have ever owned, I have documented the results. I compared it to a modern three-inch magnum, extra full turkey choked, 12-gauge pump shotgun, shooting 17/8 oz copper plated #6 shot magnum turkey loads at 25-yards. We won't men-



“The pattern out of this barrel is like sending a deadly volleyball sized wad of #6 shot all the way out to 40-yards.”

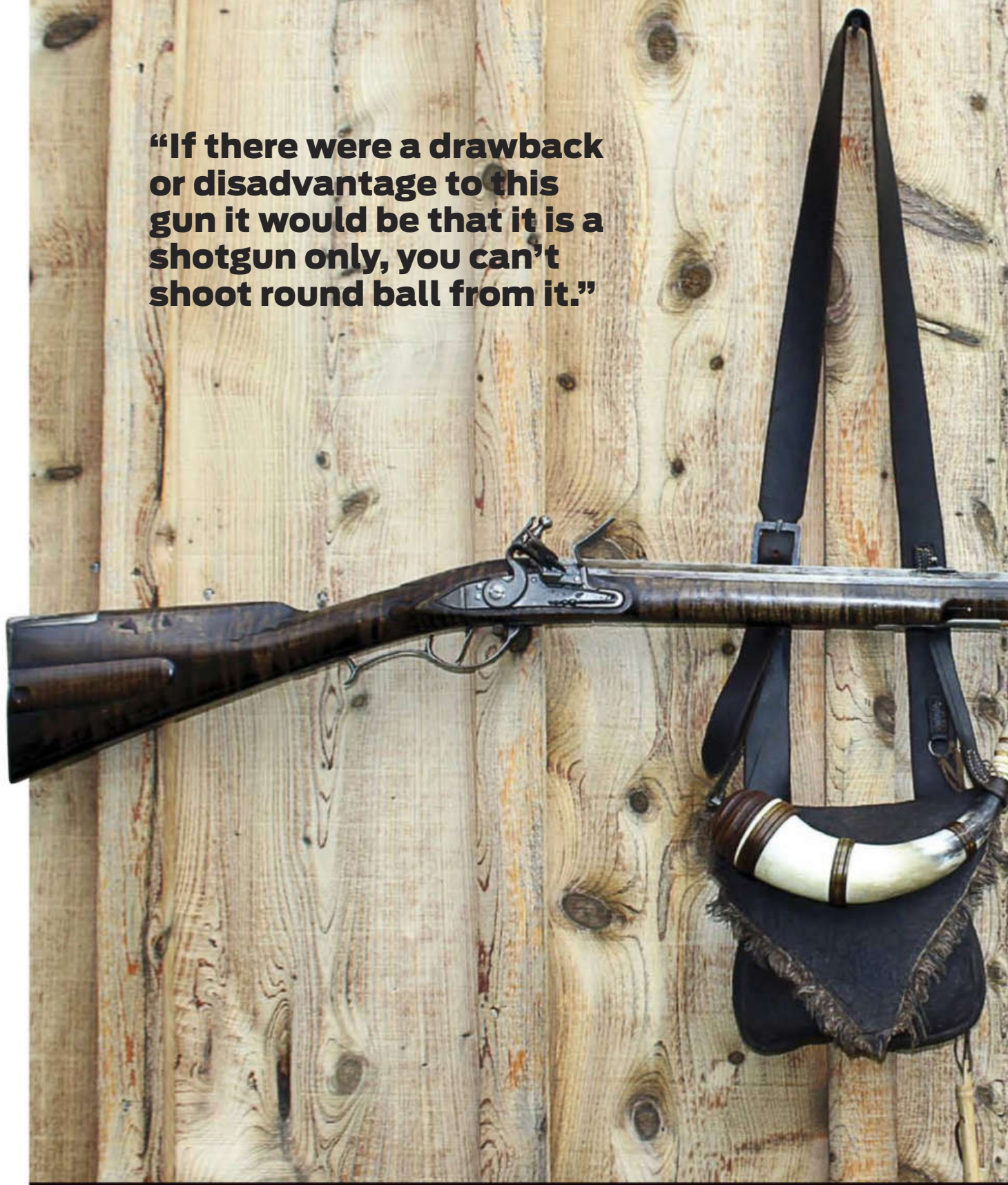


(above) A load of 1 1/2 oz. #6 lead shot 75gr. of ffg Black powder shot and felt wads as well as a beautiful southern banded powder horn and bag.

(top right) The shot pattern from the 20-gauge at 25-yards, 99 pellets using 1 1/2 oz. #6 lead shot and 75 gr. ffg black powder.

(right) The shot pattern from Modern pump 12-gauge with 1 1/4 oz. copper plated #6 3" magnum turkey load @ 25-yards, 63 pellets.

**“If there were a drawback
or disadvantage to this
gun it would be that it is a
shotgun only, you can’t
shoot round ball from it.”**



tion the modern brand of shotgun or the brand of shell. We wouldn't want to embarrass them, but be assured that they were major brands and that I have taken many turkeys in years past with that same setup. With the 20-gauge, I will be loading it with the same size shot #6 lead and 11/2 oz. over 75 gr. of ffg black powder, at 25-yards. The modern pump 12 put a respectable 63 pellets in the 6" circle at 25-yards, the 20 put a whopping 99! I have done it over and over, time and time again and will explain the load that I use to gain these results.

I first load 75 gr. of ffg black powder, then over that, I drive three thin over shot card wads, followed by an Ox Yolk brand felt wad, then 90gr. volume of #6 lead shot, which weighs out at 1 1/2 oz., then top it off with another thin card wad. Colerain has different load combinations on their website, going up to as much as 2 full ounces of #6 shot and I'm sure all the different loads will work fine, but this one works so well for me I see no reason to change.

How to Get One

If you want to make a comparison, I would liken it to fly fishing compared to bass fishing or a longbow compared to a modern compound bow. It's the romance in the method that draws the Modern Pioneer to such methods. But to be honest, in this case I feel that the Colerain Barrel Co. has produced a turkey barrel that will outperform any modern gun that I have ever shot. You will have to build one for yourself or have a custom black powder gun maker build one for you, because this is not a production type gun. My 20-gauge is built on a Lancaster style rifle stock but you can do the same barrel in a fowler style stock. The barrels come in two lengths, 38" and 44" octagon to round and I highly recommend front and rear rifle style sights. A friend of mine had one built and only had a front shotgun style bead and it simply isn't enough with this tight shooting barrel.

So do yourself a favor and improve your turkey hunting by taking a step back in time for more performance. **MP**

**A custom 20-gauge
flintlock on a
Lancaster style curly
maple stock by Joe
Schell from IL. Along
with a Southern
banded powder horn
and custom bag by
Neal Brown from MS.**



· HUNTING ·

Snipe Hunting

YES, THEY ARE REAL.
HERE'S HOW TO HUNT THEM.

By Jason Houser

RAISE YOUR HAND IF THIS HAS EVER HAPPENED TO YOU — you were led to the woods with a gunny sack and a flashlight to round up magical birds called snipes, only to come home empty handed, wet, cut up from the briars and above all else, mad, because your family is making fun of you.

Go ahead, nobody can see you, put them in the air. Despite the fact that 95 percent of you are probably raising your hands, snipe do exist, and people do successfully hunt them.





About the Bird

The common snipe that we hunt is a migratory bird about the size of a quail. The snipe, related to the woodcock, prefers to live in areas where the water table is just below the surface. With its long bill, this habitat allows the bird to search for worms and other small creatures. The colors of the snipe — white, gray and brown — make it a very difficult bird to spot.

How to Hunt It

Shotguns are about the only way to kill a snipe. No sack needed. Bring along a whole lot of shells because you will need them. Some hunters prefer to hunt with dogs, but I would rather jump shoot them. It is hard to find a good snipe dog in this neck of the woods. Snipe are early risers, out hunting for worms before returning to the bushes to hide. About an hour before dusk they venture out again in search of food. The trick is to be at your hunting ground before first light. The birds will not be out yet, but you can enjoy the sunrise.

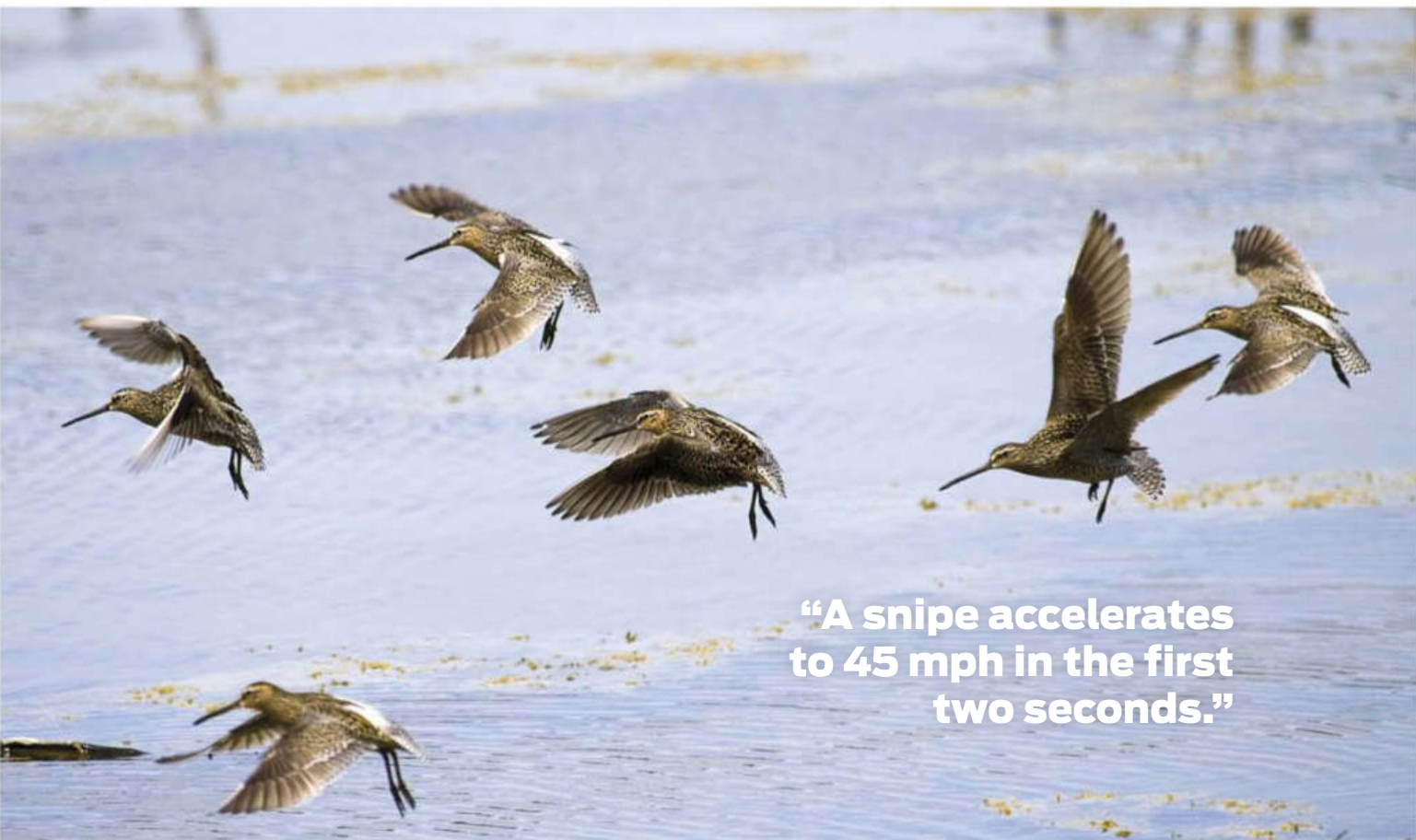
A 12 or 20 gauge shotgun with an improved choke is the best choice. As far as shells go, I like to use No.8's or skeet loads carried in my orange hunter's vest. My pants are simple, but I do like to wear chaps because of all the briars we are liable to walk through. Do not forget a good pair of waterproof boots. The tall grass can be pretty soggy from all the dew. A good hat with a bill is a must to shield your eyes from the rising sun.

The best set up for snipe hunting is a two-man team. One hunter will take the left side from 9 to 12 o'clock and the other from 12 to 3. With each hunter knowing what ground to cover, the chances of someone getting injured or worse will be minimized. The best scenario is if one hunter shoots left-handed and the other right, but that rarely happens.

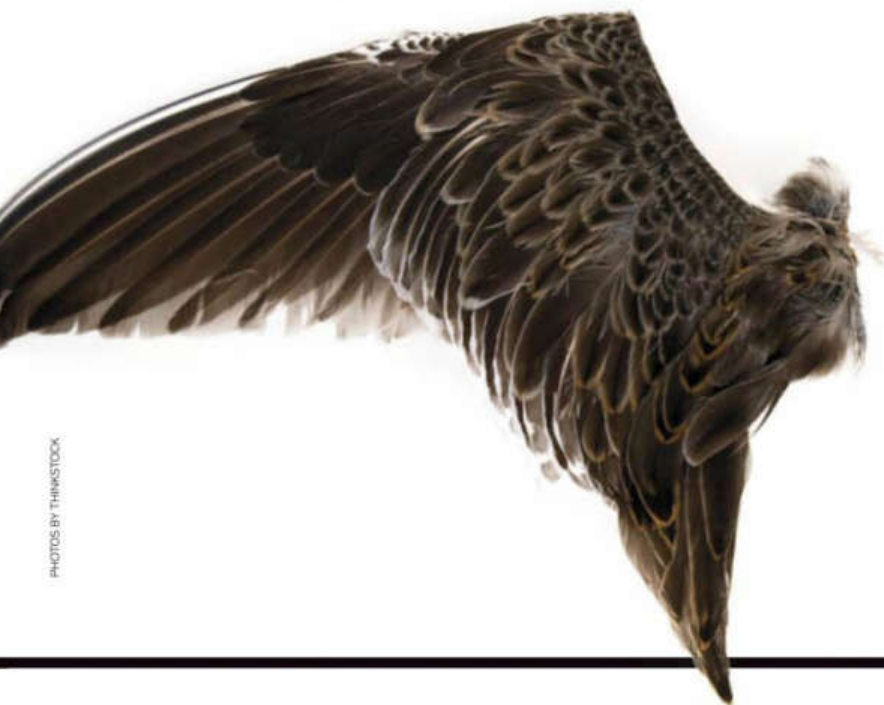
Trickier than a Dove

We all know that the dove is one heck of a hard bird to hit. The ballots are still being counted to see whether the snipe is an even tougher target. A snipe accelerates to 45 mph in the first two seconds (that's 66 feet per second). You should get two shots off, maybe three. The first chance will be during the initial acceleration run and then again at the first part of the climb to where they reach about 50 feet and then they might turn back around for a fly-by. If the bird happens to circle back around you might get a third shot. You'll rarely hit one on the first shot; it's doubtful that you're that good of a shot to kill your limit of eight birds with eight shells.





“A snipe accelerates to 45 mph in the first two seconds.”



PHOTOS BY THINKSTOCK

If you have ever hunted pheasants, or had a flock of turkey take flight in front of you, your heart probably began to pound a little faster as the daylights were just scared out of you. Believe it or not, the takeoff of a snipe compares to that of a pheasant. The little birds do not like to move until you almost step on them. It can be terrifying when they decide to take flight.

Some days you do not see one bird. Snipe are migratory, so sometimes they are there, and sometimes not. Other days, there is a convention. You bag about the same number either way. Each bird will give you about 2-ounces of strong-tasting breast meat.

In order to get your limit you will have probably shot a box of shells and more, walked till you have blisters, been scared to death, shoulders that are hurting and ears that are ringing. But, after all this, you can truly say you have been snipe hunting. **MP**

· HUNTING ·

Tom's favorite 8 hunting rifle cartridges consist of (Left to Right and Top to Bottom): .375 H&H Mag., 300 Win. Mag., 6.5 Creedmore, .22-250 Rem., .243 Win., .223 Rem., .17 Fireball & .17 Mach 2.



The Mighty Eight

WHEN IT COMES TO WHAT CONSTITUTES A GOOD CARTRIDGE FOR HUNTING, THERE'S NEVER A SHORTAGE OF OPINIONS. BUT, THERE ARE A FEW CARTRIDGES THAT ARE SIMPLY A CUT ABOVE THE FRAY.

By *Thomas C. Tabor*

OBVIOUSLY, NO ONE CARTRIDGE IS PERFECT FOR ALL TYPES OF HUNTING SITUATIONS, NOR FOR EVERY TYPE OF GAME ANIMAL, BUT IN MY OPINION, THERE ARE EIGHT CARTRIDGES THAT DESERVE A CLOSER LOOK. These range from one of the smallest rim-fires, which is best suited for use on the smallest of varmints and game animals, all the way up to a cartridge that is considered by many to be capable of bringing down any animal currently roaming the Earth. Without a doubt, there will be disagreements as to my selection of these cartridges, but if it wasn't for diversity in opinions, shooting wouldn't be nearly as much fun and we would likely all be shooting 30-06 Springfields.

VARMINT AND SMALL GAME CARTRIDGES

This classification of cartridges would be most appropriate for use on varmints and non-game species, but in some situations they could be used successfully on the smaller varieties of game animals.

.17 Mach 2

In my opinion, the .17 Mach 2 is one of the most severely underrated cartridges in production today. The reason why that is the case lies in its nemesis - the slightly more powerful .17 HMR. After Hornady's successful venture bringing the .17 HMR to the market in 2002, they decided, one year later, to offer up a similar but slightly smaller version they dubbed the .17 Mach 2.

Initially, both cartridges were loaded with the same 17-grain bullet. The HMR launched its bullet out the barrel at a little over 2,500 fps; the speed of the Mach 2 was about 400 fps slower. In my opinion, that resulted in some shooters turning their back on the .17 Mach 2. Since the initial release of those cartridges, other bullet weights have been added, but the 17-grain remains possibly the most popular for both cartridges.

Both of these rounds are based on the cartridge case of the .22 rimfire. The .17 HMR is nothing more than a shouldered, necked-down version of the .22 magnum cartridge and the .17 Mach 2 was formed by revamping a .22 Stinger L.R. case. The Stinger case is 0.100" longer than the standard .22 LR, but can still be fired in many .22 LR firearms. So why would someone prefer the slower moving .17 Mach 2 over that of the .17 HMR? There are a couple of very good reasons to choose the smaller round. One reason lies in the difference in the cost of the ammunition, with the .17 HMR sometimes running multiple times higher than its smaller cousin. There is a considerable difference in ammunition cost between manufacturers and suppliers, but in virtually every case the Mach 2 carries a considerably lower price tag. One drawback is that the Mach 2 ammo may be a little harder to find because of its unjustified lack of popularity. The second reason is that both of these cartridges are essentially 100-yard calibers



.17 Mach 2



(above) The .17 Mach 2 (left) was produced by necking down a piece of brass from a .22 LR Stinger cartridge (right).



.17 Fireball

(right) This fine American coyote was taken by Tom shooting his wildcat version of the .17 Fireball — the .17 Mach IV.

and at that distance, perform nearly identical. Obviously you can shoot further than 100-yards with either, but like the .22 LR, as you break over that range, the trajectory, energy and the ability to resist the effects of the wind diminishes quickly.

.17 Fireball

Vern O'Brien developed the wildcat version of the .17 Fireball, the .17 Mach IV, in 1962. This quickly turned out to be one of the most popular small game and varmint wildcat cartridges ever produced, but it wasn't until 2007 that Remington Arms finally commercialized it. While there are some slight variations between O'Brien's wildcat and the Remington version, ballistically, they're nearly identical. The result is a very efficient cartridge that can drive a 20-grain bullet out the muzzle at around 4,000 fps. For use on many small game and varmint species, this would be one of my personal first picks. It produces a minimal amount of recoil, a moderate level of report and, as long as the wind isn't too robust, excellent results, even out beyond 300-yards.



.223 Remington

Remington developed the .223 Remington in 1964 as the sporting version of the military 5.56×45mm NATO. The .223 is most commonly loaded with a 55-grain bullet, which typically produces a muzzle velocity of about 3,240-fps, but both heavier and lighter jacketed bullets have become very commonplace today, ranging from about 40-grains up to 90-grains. Even though the .223 isn't the most powerful .22 caliber centerfire, this cartridge continues to be one of the most popular choices for varmint and small game use. Much of that favorable standing stems from the .223's light recoil, availability of ammunition and hand-loading components, and its flat shooting capabilities out to about 250-yards, which makes it a great choice for many hunting situations. But, like all cartridges, it does have its limitations. It's a near perfect match for many small game-hunting ventures and even for the larger varmints like coyotes, wild boar and such, but it's not quite suitable for the hunting of deer. In fact, in many states, all .22 caliber cartridges are deemed illegal for the hunting of deer.

.22-250 Remington

Like so many of our best cartridges, the .22-250 has its roots within the wildcatter's workshop. For many years, cartridge wildcatters had experimented with similar configurations to what would eventually become known as the .22-250. In 1963, Browning Arms Company finally decided to accept this design and offer it as a chambering within their high power rifle line. This was an unbelievably bold and unheard of move because commercially loaded .22-250 ammunition wasn't available at that time. That ammo didn't appear on the market for a full two years later. Clearly this was an unprecedented gamble in order to push what Browning must have felt was a remarkable cartridge at that time. Being able to send a 55-grain bullet on its way, sometimes around 3,700-fps, makes the .22-250 an absolute perfect choice for a wide range of shooting applications. I have always found my rifles chambered in this caliber to provide superb results even at ranges beyond 400-yards.

While some hunters tout it as an acceptable choice for deer-sized game, like the .223, I personally wouldn't recommend its use in that venue. On the other hand, it's great for hunting medium size game like coyotes, foxes and wild pigs. Today there are a wide variety of factory-loads to choose from in this phenomenal caliber and even more combinations are available if you load your own ammunition.

“If it wasn't for diversity in opinions, shooting wouldn't be nearly as much fun and we would likely all be shooting 30-06 Springfields.”

**.223
Remington**

**.22-250
Remington**

MEDIUM SIZED GAME CARTRIDGES

The following cartridges are best suited for the hunting of deer and other medium sized game. In some cases, however, when loaded properly for that application there is a chance that they could also double for use as an effective varmint or even a small game cartridge.

.243 Winchester

Much of the credit for the .243 Winchester goes to the late Warren Page, who developed a similar wildcat cartridge which he jokingly called the '.240 Page Super Pooper.' That cartridge was based on a .244 case, which later became the 6mm. In the beginning, Winchester considered simply adopting the Page design, but finally decided in 1955 to go to market with a cartridge that was remarkably similar using the .308 Winchester as its parent case. In essence, the .243 Winchester is nothing more than a necked down .308 cartridge, except it sends a typical 100-grain hunting bullet on its way at around 3,000-fps. The really neat thing about the .243 is its versatility. The recoil is light, making it a favorite choice for ladies and young shooters, and when loaded with a good-quality hunting bullet, it can be very effective on deer-sized game. It can also be easily transformed into a small game and varmint cartridge simply by loading a lighter weight bullet, like a 55-grain.

I have shot .243s for many years, chambered in various rifles, and have found them to be extremely effective on deer. Personally, I favor my own handloads in those rifles, which I typically load with 95-grain Nosler partition bullets, but for coyotes, I like the 55-grain Nosler ballistic tip. Similar loadings are available in factory-loaded cartridges.

6.5mm Creedmore

Over the years, I have often wondered why there hasn't been more attention given to 6.5mm (.264-inch) caliber cartridges. For the most part, the .264 Winchester Magnum was too much of a good thing when it came to velocity and the barrels suffered from that extreme speed, proving the product a dismal



One of Tom's personal favorite deer cartridges is the .243. This fine mule deer fell to the charms of his custom stocked Remington 700 BDL at a range of about 300-yards. The cartridge was a handload loaded with a 90-grain Nosler E-Tip bullet.

failure. But today there is good news for those of us that like the 6.5mm bullet. In 2007, Hornady's Senior Ballistician Dave Emary, designed the 6.5 Creedmore, which shows great promise as a mid-range hunting cartridge. It was actually developed for long range competitive shooting, but I feel it will, in time, become a well-respected cartridge for hunting of medium sized game. When loaded with its typical 120-grain bullet and sighted-in to impact about 1-1/2" high at 100-yards, you can expect the bullet to be down by only about 7" at 300-yards. This flat shooting performance, frequently coupled by a superb level of accuracy, makes the 6.5 Creedmore one of my predicted future hunting superstars. This cartridge has only been out a few years, so my own experience is a bit limited. I have only taken one deer with it, but with a typical bullet weight of 120 to 140-grains and muzzle velocities running from 2,710 to 3,050 fps, this cartridge promises a great future. And my own gunsmith tells me that it is his most popular caliber for his custom built rifles.

LARGE GAME CARTRIDGES

This classification of cartridges is most appropriate for those hunters that are looking for the ultimate in firepower for putting down the largest and toughest of game animals.

.300 Winchester Magnum

If I could only own a single rifle, it would have to be chambered in .300 Winchester Magnum. This is an extremely versatile cartridge that is fully capable of effectively taking any game animal in North America. While some hunters might feel such a rifle is a bit too large and powerful for use on deer and antelope sized animals, I have used my own rifles in this caliber many times for those precise animals. I would, however, agree it is on the upper end

of the scale for this size of an animal, but my feeling is "too much cartridge is often better than too little."

Winchester brought out its .300 Magnum in 1963 to compete with the .308 Norma Magnum. The endeavor was so successful that it nearly drove the Norma magnum into oblivion, at least here in North America. The .300 Winchester Magnum is capable of pushing the very popular 180-grain bullet out the muzzle in some cases over 400-fps faster than that of the .30-06. This phenomenal performance makes it a caliber that can be effective at 400-yards and further for big game use. Aside from that, one of its main attributes is its ability to be chambered and used in a standard length action rifle. I have taken a vast amount of big game species, over the years, with my collection of .300 Winchester Magnum rifles and believe that this is one of the best big game cartridges ever produced. The 180-grain bullets typically shoot the flattest in this car-



This black bear with a prime coat was taken in New Brunswick, Canada using Tom's Ruger 1B single shot rifle and a handloaded cartridge with a 180-grain Nosler Partition bullet.

While on safari in the Limpopo District of South Africa Tom took this huge eland using his Winchester Model 70 Super Express chambered in 375 H&H Magnum. The shot was about 100-yards and the cartridge was a handload with a 300-grain Nosler AccuBond bullet. The bullet penetrated through both lungs and was found just under the skin on the far side.



“If I could only own a single rifle, it would have to be chambered in .300 Winchester Magnum.”

**.375
Holland &
Holland
Magnum**



tridge and frequently retain higher levels of energy at long range than even the 200-grainers do. For that reason, I seldom deviate from that bullet weight, but a favorable thing about .30 caliber cartridges is the diversity of the available bullet weights and styles.

.375 Holland & Holland Magnum

The .375 H&H Magnum is clearly on the upper most end of this category of rifle calibers, but if you are looking for an effective cartridge for elk, moose and large bear there are few that are any better. This cartridge, the brainchild of the world famous London gun maker Holland

and Holland, first released over a century ago in 1912. Typical bullet weights generally range from about 270 to 300 grains, but there are exceptions on both ends of this spread. I have used my own .375 chambered rifles to take a variety of game ranging from moose in Montana to plains game in Africa and have always found this cartridge to be extremely effective. Essentially it is a medium range round that is best suited out to about 250-yards. So, if you find yourself in the need of a cartridge that packs a real wallop for large and excessive tough game this would certainly be a good choice. **MP**





· HUNTING ·

Gutless Quarter

HOW TO HARVEST YOUR KILL AS CLEAN AS POSSIBLE

By **Brian Brown**

THE REPORT OF THE RIFLE WAS STILL ECHOING OFF THE MOUNTAINSIDES WHEN A NICE FIVE POINT BULL ELK FELL TO A SINGLE WELL-PLACED SHOT. At the time, my hunting partner and I were both “financially challenged” freshman in college and this elk was a welcome addition to our empty freezer. With darkness setting in we got to work and quickly gutted the bull. Since the truck was less than half a mile away and mostly downhill we figured dragging him out whole would be fastest - we could not have been more wrong. After hours of pulling, cussing and straining we finally made it to the truck - then the real work started. As if it was not hard enough to load an entire bull elk into the bed of my buddy’s truck, the evening dew formed a thin sheet of ice on the plastic bed liner basically converting it to an ice rink. An hour later, we were exhausted but finally had him loaded and headed for home; in the back of our minds, we both knew there had to be a better way. In a perfect world, taking an animal out whole allows you to leave the hide on while in the field keeping the meat cleaner with less trimming and wasted meat. Additionally, hanging the animal whole or at least getting it off the ground allows you to work without kneeling or bending over the whole time. More often than not this is not an option because you are either too far from the nearest road to get a vehicle close or the terrain does not make it feasible to drag. Trying to maneuver and muscle hundreds of pounds of literal dead weight any distance is not an easy task.

The gutless quarter process allows you to remove all the edible portions of meat from a carcass without disturbing the animal’s internal organs. This is a two-phase process removing the quarters, back straps and tenderloins from one side of an animal. Once the first side is complete, simply roll the carcass over and repeat. Whether having a horse do the packing or carrying the trophy out on my back, I have grown accustomed using the gutless quarter method and much prefer it over traditional “gutting”. Aside from breaking the animal down into much more manageable portions, this method also gives me a head start on the butchering once I get home and leaves all the remaining bones and inedible parts for the scavengers. Not having to “gut” the animal eliminates the un-avoidable bloody mess once opening the chest cavity and reduces the chances of contaminating any meat with unfavorable body fluids. This process is not as daunting as it seems and only gets easier once you get the hang of it — you will wonder why you had not been quartering all along. ➔



Skinning

Some prefer to leave the hide on the outside of the individual quarters but I prefer to remove it first to help cool the meat faster. Either way, try to minimize the amount of loose hair that ends up stuck to the meat. This is best accomplished by making clean, strategically placed cuts in the hide and when possible cutting with the “grain” of the hair will reduce the amount of hair actually cut free from the hide. If you plan on getting your trophy mounted be sure to carefully cape out the hide before beginning the quartering process.

The first step is to cut the hide around the upper joint on both quarters, up the inside of the leg to the center of the belly. Next cut the hide along the belly from the cut at the front quarter towards the rear quarter until you reach the animals reproductive organs. Now is the time to make the appropriate cuts to leave evidence of sex naturally attached to the rear quarter as required by your local game laws. It's always best to leave it attached to the first quarter. That way, if you make a mistake, there is still a chance to leave it attached to the other rear quarter. Skin and remove the hide from the belly up to the backbone and extend up the neck far enough to expose the neck meat.

1. A good example of the skinning process

2. Once the hide is removed up to the spine, it can be stretched out and used to lay meat on. The most important part of this whole process is keeping the meat clean by minimizing the amount of hair and dirt the meat comes in contact with - not an easy task in this sandy country.

3. Do your best to minimize dirt and hair contact. Once at home use clean tap water with a splash of vinegar to clean off any dirt and a quick blast with a blow torch to burn off any hairs.

4. Whether working alone or with a partner, have a good grip on the quarter because when you make the final cut you don't want it landing on the ground.

5. This cow was harvested in an area covered in sage brush and sand flats, so getting the meat elevated was not possible. The tarp came in handy to lay the quarters.





6. Use caution when making cuts close to the abdomen — once the tissue containing all the organs and intestines is cut, they will slip out and you will have to work around them.

7. Once you sever the main ligaments at the ball joint, the rear quarter will have much more flexibility, making it easier to move it but more difficult to control.

8. Rotating the rear quarter as you cut makes it much easier to efficiently trim the meat away from the pelvis.

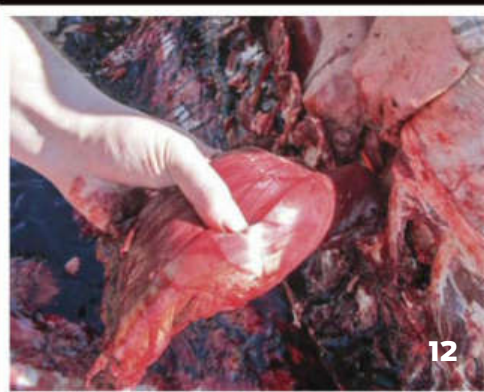
9. Trimming away the “silver” skin from the back strap allows you to clearly see where to make the appropriate cuts to remove it.

10. Keeping pressure or pulling on the back strap as you cut makes it easier to remove without too much scrap left behind.

11. Trying to cut away the tenderloins with your hands inside the chest cavity could result in stitches. Most of the time you can pull the meat free from the underside of the spine.

12. It doesn't get much better than fresh tenderloins roasted over a fire after a successful hunt. Removing the tenderloins can be tricky, but leaving these tasty cuts behind is not only wasteful but illegal in most states.

13. Roast or burger — there is a lot of good meat on the neck that should not be left behind.



TIPS

- Before getting started, be sure to take plenty of “trophy” pictures. This is a lesson I have learned the hard way - it’s frustrating when you get home from a successful hunt and look at your pictures only to find a sun glare or shadow washes out your face or the animal’s tongue is hanging out distracting from the trophy.
- A “Kill Kit,” consisting of all the tools needed to break down an animal, should always be in your pack while hunting. At a minimum, it includes a knife with extra blades or a sharpening stone/rod and your game bags. Also handy is rope or para-cord, a tarp or contractors trash bags and a few zip ties.
- Rope or para-cord is like an extra hand to help hold a leg while butchering, and can be used to help secure a load to a pack or pannier and to hang quarters to cool.
- A tarp or contractors trash bags are useful during this process allowing you a clean place to lay quarters out. The trash bags can also be used to submerge the quarters in a creek or lake without getting them wet for faster cooling if the temperatures are too hot. Be sure not to get any scented bags as it may taint the meat.
- Keep your knife sharp and take the time to sharpen it or replace the blade before it’s too late. A dull blade is not only harder to sharpen but is also more dangerous, forcing you to apply more pressure to cut and that is when accidents happen.

Front Quarter

Now you can actually begin the quartering process — first up is the front quarter. Since there are no joints connecting the front shoulder you simply just start lifting it up and cutting away the connecting muscle as you go. It is always better to cut more meat from the chest around the quarter and trim later as needed. Continue to lift and cut away the remaining tissue and muscle around the quarter — eventually it will come free. When hunting with a partner, make sure they have a good grip on the quarter and that it does not fall to the ground once cut loose. When working alone, rest the quarter across your knee with one hand cutting while the other holds the quarter. Once the quarter is cut free, place it in a game bag to protect it from insects and dirt. Set it somewhere out of the way, preferably elevated off the ground, either hanging or resting on rocks, logs or bushes allowing air to flow around it, helping to cool.

Rear Quarter

The rear quarter is a bit more complicated because of the hip socket and weight of the additional meat you are working with. Before getting started, plan out your cuts as to keep the evidence of sex naturally attached — it’s



LABOR OF LOVE: Packing out this bull took 2 days and 2 round trips totaling 37 miles. Every step was a step closer to a full freezer.

(top) A good bull from a couple years back quartered up and ready to head for the truck.

easy to jump in and accidentally make the wrong cut that can cause you headaches with the Game Warden. Start by lifting the hind leg and begin cutting the meat along the pelvic bone following the pelvic ridge, towards the tail. Be careful not to cut too deep and puncture the abdomen — it’s easy to do. Cut the meat away from the pelvic bone as closely as possible and you will maximize the amount of meat on the quarter. You will notice the leg will become more flexible allowing you to lift it up further as you cut

away the connecting tissues. Eventually you will run into the ball socket and once you cut these ligaments, the leg will want to lay all the way back to the ground so hold on. Before cutting the quarter free, have your game bags ready and somewhere to lay the meat. Continue cutting the meat free from the pelvis until you reach the point where it meets the spine - having a buddy lift up on the quarter during this step helps but is not required. The rear quarter should now be free and ready for a game bag.

Back straps

The next step is to remove the back straps: start by lightly cutting thru the “silver” membrane covering the choice cut of meat. This allows you to see where the back strap begins and ends. Cut between the back strap and the spine, deep enough to hit the top of the ribs from the neck to the hip. Then cut under the back strap, along the ribs, back to the spine. Allowing your knife to follow and “flex” around each vertebrae and rib will minimize the amount of scraps to trim later. After making the initial cuts, start at the neck and lift up on the back strap, cutting any remaining connecting tissue as you work your way back towards the hip, until the back strap is cut free.

Inner Tenderloins

Removing the inner tenderloins might be the most complicated step of this process because you will have to move the internal organs to access these delicious chunks of meat. Locate the short ribs and carefully cut through the membrane into the chest cavity without cutting any organs inside. Reach into the chest cavity, moving the internal organs down and out of the way with your forearm and locate the tenderloin along the underside of the

LAWS

- Remember to validate or punch your license or tag before processing and be sure to leave evidence of sex attached to at least one quarter as required by local laws.
- Even when not required by law, it is good practice to remove the meat from the field before packing out the antlers and/or head.
- Know the local requirements for what edible meat is required to be salvaged. At a minimum, the four quarters, back straps and inner tenderloins (don't forget these tasty cuts) should be removed but there is a lot of good meat on the neck and brisket that is often left in the field.

spine. For the most part you should be able to pull the tenderloin free with your hands but can also insert your knife between the short ribs along the spine and cut free as needed.

Neck and Brisket

Before repeating the process on the other side, be sure to remove the neck meat and brisket, otherwise once you roll the animal over it will be covered in dirt and leaves.

Starting the Second Half:

At this point you are half way done – now is a good time to take a quick break, stretch, change blades or sharpen your knife, then roll the carcass over and repeat the steps above.

Parting Words

You know the old saying “there is more than one way to skin a cat”? Well the same applies to deer, elk, antelope, moose.... you get the idea. This is how I have learned the gutless quarter process but it is certainly not the only way. Some steps have even been altered after figuring out some tricks along the way that either speed up the process or provide a cleaner, better, finished product. Like most tasks, the gutless quarter is a process that is best learned hands on, learning from your mistakes and perfected through repetition. **MP**

GAME BAGS

Using the gutless quarter method requires quality game bags to protect the meat from dirt, debris and insects. You can get by with 4 bags but having 2 extra allows for the “trophy” meats like back straps and tenderloins to be kept separate and any loose trimmings, neck meat and brisket in the last bag.

- COTTON AND CANVAS** — Typically heavier and bulky but more affordable. The Alaskan brand is fairly lightweight and reasonably priced but the material may not stand up to a lot of abuse. Also, the weave of the material is larger and may allow insects access. Allen or Remington also make similar game bags that are heavier duty, affordable and can be picked up at most big box stores. Some people even sew their own out of bed sheets or pillowcases with success.
- SYNTHETIC** — The synthetic materials tend to be lighter weight, more compact and very durable but also more expensive. T.A.G. Bags from Pristine Ventures is what I have been packing for the last couple years and so far I have packed out at least 4 animals with these. A quick soak and wash after each use and they still look like new.
- Some people have used cheesecloth or even panty hose for game bags, but to best protect the meat, stick to the more traditional game bags.



Author's "Kill Kit" containing (6) synthetic game bags, some para-cord, two contractor's trash bags and a Havalon knife with 5 replacement blades.

· HUNTING ·

DIY Powder Horn

FOLLOW THESE EIGHT STEPS TO MAKE YOUR OWN AIRTIGHT, MOISTURE-PROOF AND PERSONALIZED POWDER HORN.

By *Darryl Quidort*

EVER SINCE THE INVENTION OF GUN POWDER, SOME FORM OF CONTAINER HAS BEEN NEEDED TO CONTAIN IT AND PROTECT IT FROM MOISTURE OR, WORSE YET, A SPARK. Leather bags, wooden boxes, metal flasks, and animal horns were experimented with. Some of these worked and were eventually perfected for use.

Here in America the cow horn became the predominant container used for carrying gun powder. Beginning in the early 1700s and continuing until the mid 1800s, the powder horn was the principal powder container used by soldiers and hunters. For at least 150 years, the powder horn, along with the bullet pouch, could be found hanging alongside the muzzle loading rifle at all times.

Daniel Boone was known for making intricate powder horns. Author, John Bakeless, recorded that, "he [Boone] scraped powder-horns to translucent thinness, through which the powder was visible, in the style the old woodsmen admired-carved them, cut his name on them, then gave them away." Boone made horns throughout his lifetime. Visitors in 1818 reported "Old Boone" scraping on a new powder horn with a piece of broken glass, preparing to go on a fall hunt. Daniel Boone passed on in 1820 at the age of 85.





Many of the original powder horns were utilitarian tools, a simple cow horn with a pine plug in the base and a groove filed around the neck to hold a shoulder strap. Others were works of art, complete with intricate scrimshaw art work, carved necks, and fancy fiddle pegs used as stoppers. The simple horns wore a leather cord for a shoulder strap, the fancy horns were adorned with colorful hand woven straps.

Historically, powder horns were produced by a variety of professional “horners,” idle soldiers while in camp, and individuals at home or on the frontier. They were made for pay, as gifts, and for individual use. The powder horn had reached an unsurpassed level of functional art in America. Whether carved, scrimshawed, or plain, antique powder horns are now sought after and collectable as examples of early Americana.

Today powder horns are still in use by muzzleloading hunters, historical re-enactors, and shooters at muzzleloading clubs and events to safely carry the black powder needed to fire their rifles. When attending a modern rendezvous, primitive camp, or muzzleloading show, you will notice the pride people take in their powder horns. I imagine that it was always so. Professionals still make and sell powder horns through retail suppliers, and many still choose to make their own. Making your own powder horn is not difficult. The tools needed are probably already in your shop or garage. The following eight steps will guide you through the process.

STEP 1

Choosing the raw horn is the first step. Most any old horn will work but there are several things to consider when picking a horn for a powder horn. Bison horns and black cow horns are harder to work with than the slightly softer, light-colored cow horns. If you intend to do any engraving or scrimshawing on the horn choose one with a white or light colored body. The neck color of the horn doesn't matter, as it can be dyed. Study the curve of the horn and decide

1. Electrical tape will guide the hacksaw blade for making a shallow cut to form the rings and spout. The horn material between the cuts will be reduced with a rasp and file.

2. The neck area has been reduced, the shoulder of the horn has been carved, and the base plug installed. The horn is now ready to dye.

if you would wear it on the left or right side. Discount any horn with deep fractures or visible circles. These are layer separations inside of the horn that will cause problems later. Size of the horn is a personal choice. No two horns are alike, so the perfect horn is in the eye of the beholder.

STEP 2

Next, we will cut and drill the horn tip. Bend a wire to match the curve of the horn. Then push the wire inside the horn to measure the depth of the inside cavity. Remove the wire, place it along the outside curve of the horn, and mark the depth of the cavity on the outside of the horn. This shows you how much solid tip the horn has. Make a second mark where the tip needs to be cut off, usually at least an inch or two of solid horn should remain. Now cut the tip off square using a hacksaw. Carefully drill a hole in the horn from the center of the cut off tip into the center of the inside cavity. Start a pilot hole with a small drill bit and enlarge it with a ¼ inch bit. Slightly taper the hole with a small, round file. Finally, smooth up any rough burrs so the powder will flow freely.

STEP 3

Plugging the horn base. A wooden plug can be fashioned to fit snugly inside of an odd shaped horn. However, I find it easier to shape the horn base to fit the plug. Boiling the horn base in water will soften it enough to be pressed onto a wooden “sizing cone.” This is a round, tapered block of wood that will fit into any size of horn base. Wearing leather gloves, frequently check the horn for flexibility as it boils. When soft enough, press it onto the sizing cone as far as it will go and leave it to cool. After cooling the horn base should retain its round shape pretty well. Now trace around the horn base on a piece of ¾ inch thick, soft wood. Cut out the traced circle for making the base plug. The edge of the plug will need to be filed or sanded to a taper to fit snugly

“Bison horns and black cow horns are harder to work with than the slightly softer, light-colored cow horns.”



into the horn's base.

The finished plug can be flush with the horn base or slightly domed. The plug will be installed temporarily at this time. It will be installed permanently later, after the horn has been scraped smooth. For now, just drill four small holes, at right angles, through the horn and into the edge of the

base plug. Drive a round toothpick into each hole to hold the base plug in place.

STEP 4

We will now layout and shape the neck of the powder horn. The neck can be reduced in thickness to make the horn much lighter and more attractive as well as making a ringed area to attach the shoulder strap. A wide rubber band can be snapped on the horn and moved around until you like the proportions for the neck area. Then draw pencil lines around the horn to mark the rings. Now, black electrical tape can be applied exactly along the pencil lines. Use a hacksaw to carefully cut lightly around the horn at the edge of the tape. This shallow cut gives you a "shoulder" to work against as you rasp and file away the unwanted material between your marks. Carefully reduce and round out the neck area with a rasp and finish it smoothly with a fine toothed, mill file. Once you have the neck area shaped, the horn can be scraped extremely smooth by using a knife blade or cabinet scraper held at right angles to the work. At this time smooth both the neck and body of the horn until it is quite thin and perfectly smooth.

STEP 5

Staining the horn is done with a hot dye bath using "Rit" or any similar dye. Remove the base plug from the horn for the dying process. Black or dark brown is usually the color of choice. Bring a strong mixture of the dye to a boil in an old coffee can, then shut off the heat. Immerse the neck of the horn in the dye, for a half hour or more, until the horn is as dark as you want it. If any dye gets on the body of the horn it can easily be removed by scraping. Once dry, a coat of Johnson Paste Wax will seal and protect the dye from wearing off. Many original, antique powder horns have a yellowish colored, aged look. I don't know if this is caused by natural aging or if they were originally colored for a camouflage effect. If you want to give your horn an old, aged look, now is the time to lightly dye the body of the horn with a mixture of yellow and brown dye.

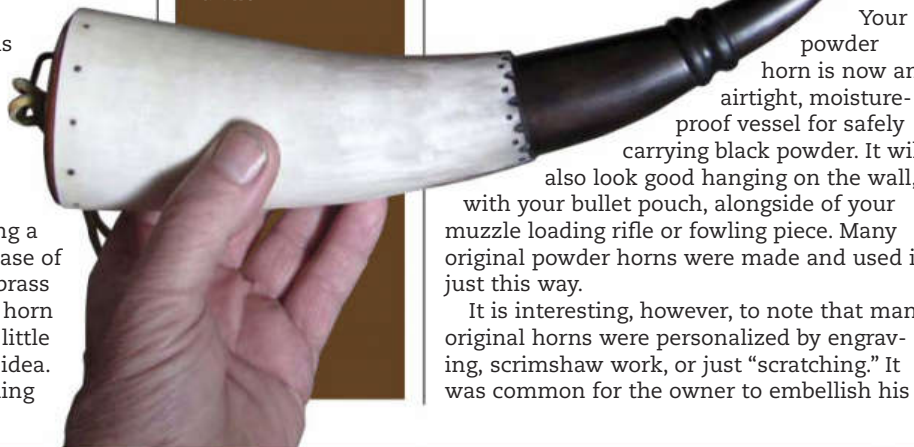
STEP 6

The base plug can now be permanently attached by carefully drilling a series of small holes around the base of the horn and driving small nails, brass pins, or wooden pegs through the horn and into the wooden base plug. A little glue in the holes might be a good idea. The nail heads can be left protruding

3. A quart jar holds the hot dye bath used for coloring the neck of the powder horn. A half hour or more in the strong dye will be required to sufficiently color the neck area.



4. The neck area has been dyed, a "forged" staple driven into the finished base plug, and the body of the horn has been scraped smooth. This powder horn is now ready for scrimshaw art work.



or filed off flush. Wooden pegs should be cut cleanly flush with the horn. Historically, the base plug was sealed airtight with bees wax. Bees wax will still work, as will carpenter's white glue. After attaching the base plug, blow a little pressure in the horn from the spout end to check for any air leaks that need to be sealed. The base plug can now be stained, if desired, and a finish applied.

STEP 7

To attach a shoulder strap to your powder horn, a staple can be placed on the end of the base plug or through the horn into the edge of the base plug on the upper side. An authentic looking "forged" staple can be made from a heavy, wire coat hanger. Pound the wire with a hammer against a flat metal surface until you have a square wire. Then make the 90-degree bends, leaving the desired width for your strap. Cut off the ends to form a wide staple. Drill two holes in the base plug and tap the staple legs into the holes. A little glue in the holes wouldn't hurt. The other end of the shoulder strap will be tied at the ring on the horn's neck.

STEP 8

A stopper for the spout will finish your powder horn. Some fancy original horns used a fiddle peg as a stopper. A fiddle peg is already tapered to fit the tapered hole in the horn and works very well. However, most original stoppers were very plain. Many were hand carved from a softwood stick with enough of a head left on them to grip with the fingers or even with the teeth. Some were tied to the horn with a thong so they couldn't be dropped and lost. I find that soft wood, like white pine, works better than hard wood because it squashes into the hole easier for a good fit. The stopper can be finished the same as the base plug. A light coating of bees wax or paraffin will cause the stopper to "stick" in the horn better.

Your powder horn is now an airtight, moisture-proof vessel for safely carrying black powder. It will also look good hanging on the wall,

with your bullet pouch, alongside of your muzzle loading rifle or fowling piece. Many original powder horns were made and used in just this way.

It is interesting, however, to note that many original horns were personalized by engraving, scrimshaw work, or just "scratching." It was common for the owner to embellish his



This pencil drawing has been transferred to the horn, etched with a pen knife, and colored with India ink.

personal horn with his name or initials, often nicely done but sometimes crudely scratched into the horn. The owner's name, dates, maps and other information on the body of the horns left us a valuable history lesson in early American war efforts and American folk art.

During our history, several different "schools" or classes of powder horns are noted. "Military" type horns may portray soldiers in uniform, forts, battles, or maps of military campaigns. Sometimes they have names or dates of historical significance. "Folk art" horns were a form of self-expression, often showing a person's individual life story or beliefs. Birds, animals and hunting hounds often adorn such horns as well as trees, flowing vines and flowers. "Nautical" horns often were decorated with ships at sea under full sails, ropes, rigging and sometimes cannons.

Some say "scrimshaw" is actually a nautical art, done by sailors on ivory or bone. Perhaps "engraving" is the proper term for etching on powder horns. Either way, cutting designs into the powder horn with a sharp tool, is one of the few art forms considered to be native to America.

Engraving a Legacy

To scrimshaw your own powder horn, you'll first need to gather the tools needed. A sharp #2 lead pencil or drafting pencil, black India ink, wooden toothpicks, a cabinet scraper, and possibly a magnifier. The most important tool needed is the engraving tool. This may be an X-Acto knife, a carving knife with a short, stiff blade, or a small pen knife. The engraving tool needs to fit comfortably in your hand and be very sharp.

Now decide what name or art work you want to scrim onto your horn. Draw your design out on paper and correct it until you are satisfied with the size and style. This drawing will be your pattern for the art work on your horn. If you use text, remember that most lettering on original horns was done in simple block letters or old style, scroll letters.

Draw your design and lettering on your horn with a sharp pencil. If you can't draw it freehand use carbon paper to trace your design onto the horn or cut it out and trace the outline onto the horn. If you make a mistake

simply "erase" it with the scraper. Once the design is drawn on the horn you are ready for the important part of the work.

Cutting the design onto the powder horn is done with the engraving knife. Sit at a work table and support the horn with a folded towel or small sand bag. Hold the horn steady in one hand and hold the engraving tool like a drawing pencil in the other hand. Keep the knife blade about 90 degrees to the work to prevent the tip from accidentally skating off the curved surface of the horn. Carefully cut the lines into the horn by pulling the engraving tool toward you along the line. Pulling gives better control than pushing the engraving tool away from you. Scratch out each individual line of your design with the sharp knife. To keep from over-running the end point of a line, start at each end of the line and cut to the middle. If you do slide past an end point, you may

be able to "erase" the mistake by scraping away some horn material with the cabinet scraper. Curved lines may be easier to follow by turning the horn under the tool instead of turning the knife around the curve. Don't rush it! Work slowly and carefully. Take a break when you begin to feel fatigue and guard against any feeling of a need to hurry. Scrimshawing is fun once you develop the patience needed and get a feel for it.

Use India ink to permanently color the lines of the scrimshaw design. Dip the tip of a sharpened toothpick into the ink and gently touch the cut line with it. You may see the ink travel down the line on its own, or you may need to trace each cut with the toothpick. Ink each line of your work. Don't worry about excess ink on the design. After all the lines are inked simply lightly scrape

the surface clean with a cabinet scraper or knife blade. This will leave a smooth surface on the powder horn with cleanly inked lines. If a line isn't dark enough simply re-cut and re-ink it. To add depth to your scrimshaw work you can go back and "shade" areas by cross-hatching them with fine cuts. Add India ink to the shaded areas and clean them up with the scraper.

Finish your powder horn by cleaning up any dirty areas, smudges, and fingerprints with a final scraping of the horn to smooth and clean it. Then, rub on a coat of Johnson Paste Wax. After the wax dries, buff it out to achieve a clear, protective finish on your work.

Whether you hang your finished powder horn on the wall as a decoration or actually use it for its intended purpose, by making and scrimshawing your own horn have closed another link in the chain of time connecting you to our American pioneers, even Daniel Boone. Your powder horn can now be a part of your own legacy. And you can say, "I made it myself." **MP**

"A light coating of bees wax or paraffin will cause the stopper to 'stick' in the horn better."

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Among the most versatile 38 Special revolvers is this Smith & Wesson Model 15. It is no longer available in blue, but the current Model 67 is the stainless steel equivalent.

Master of Trailguns


A 38 SPECIAL IS AN EXCELLENT COMPANION FOR TRAIL, CAMP, OR HOMESTEAD.

By James E. House



DEFENSE OR SURVIVAL SITUATIONS DO NOT OCCUR EVERY DAY, BUT WHEN THEY DO YOU NEED TO BE PREPARED. Being prepared means you have the necessary skills and equipment to keep a bad situation from turning into a disaster. The longer the situation exists, the greater the need for equipment and the skill required to use it successfully.

For most of us, the necessary equipment includes tools to provide shelter, food and protection. One of these essentials may be the dominant concern depending on the location and weather. Generally, equipment for obtaining food means a firearm of some type. Personally, I would opt for a rifle in the quest for food because it can be fired much more accurately than a handgun. However, in many cases being able to transport all of your equipment and supplies is necessary, and a handgun is favored on the basis of portability. ➡



An accurate 38 Special such as this Smith & Wesson Model 15 is a versatile trail and survival gun.

“But when it comes to ease of carry, availability and choice of ammunition and accuracy, a 38 Special is efficient.”

A handgun can be available at all times and still leave both hands free for other tasks, which may be important if you are gathering fuel, searching for water, taking photos, or preparing food. Opinions differ widely on what constitutes a good handgun for general use in remote areas and there are many that could potentially be suitable. My choice most often is a Smith & Wesson Model 15 38 Special, which is also known as the Combat Masterpiece. Others may choose a 44 Magnum or a 45 Auto. The choice is a personal one. Keeping in mind that the handgun will be used for obtaining food and possibly for protection, consideration must be made as to what are the potential threats. If large carnivores are a threat, a very powerful handgun

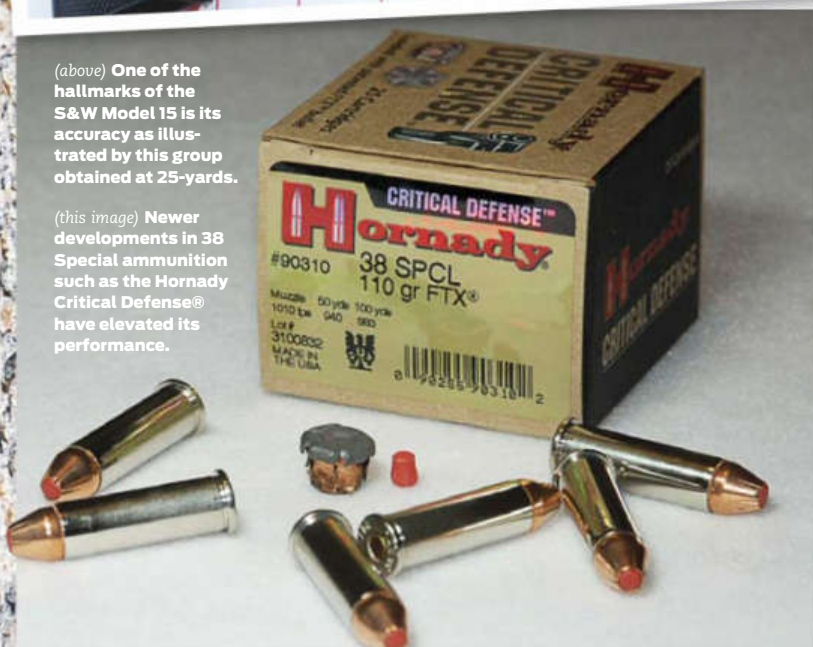
would be in order and a potent centerfire rifle would be even better. But when it comes to ease of carry, availability, choice of ammunition and accuracy, a 38 Special is efficient.

If the region is such that continued existence is the issue but large, dangerous animals are not a threat, there is no need for a really high-powered, magnum handgun. My choice in those cases is an old fashion favorite, the 38 Special. The cartridge, which utilizes bullets measuring 0.357" in diameter, was introduced in 1898 as a black powder round with a lead bullet, but with today's ammunition it is much more effective. Such a handgun is perfectly capable of protecting you from rabid or hungry skunks, snakes, coyotes, or other kinds of vermin seeking your supplies.



(above) One of the hallmarks of the S&W Model 15 is its accuracy as illustrated by this group obtained at 25-yards.

(this image) Newer developments in 38 Special ammunition such as the Hornady Critical Defense® have elevated its performance.



Factory ammunition in 38 Special caliber is available in a wide variety of types.



(above) For situations in which deep penetration is not needed, the Winchester Silvertip® is an excellent choice.

“Weighing only about 32 ounces, that gun is capable of shooting more accurately than I can.”

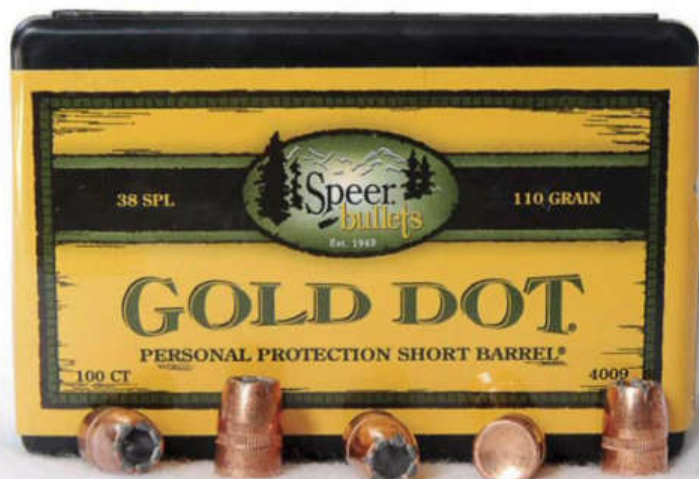
A good 38 Special revolver is superbly accurate. There is a reason why such guns dominated the centerfire target matches for so many years. The current craze for autoloaders has resulted in many fine 38 Specials being traded in for pocket sized pistols in 380 Auto or 9mm Luger. As a result, you may be able to find a used 38 Special at good price.

My favorite 38 Special is a Smith & Wesson Model 15 Combat Masterpiece that I have had since the early 1970s. Weighing only about 32 ounces, that gun is capable of shooting more accurately than I can. Although that S&W is my favorite, there are many other models from which to choose, both currently produced and older models. The fixed sight S&W Model 10 is built on the same K-Frame and has been produced by the millions. I also have a S&W Model 14 Masterpiece target model with a 6-inch barrel that is incredibly accurate, but portability becomes an issue with a gun of that size.



(below) The Speer Gold Dot® bullets are produced with large cavities to promote expansion even when fired from revolvers having short barrels.

(right) This one-half life size coyote target was shot at 50 yards with a scope on the 38 Special handgun.



For constant carry, one of the snubbies with a 2- or 3-inch barrel is convenient, but accurate shooting with such a gun is much more difficult. However, some of the currently produced 3-inch models have adjustable sights and may prove sufficiently accurate for general use. The point is, there is no shortage of 38 Special handguns.

If you have not kept informed as to changes in ammunition, you may not be aware that the old 158-grain lead bullet load for the 38 Special is by no means the only choice. Previously, the performance of a 38 Special was based on that load, but that is no longer the case. Most ammunition manufacturers have introduced high performance 38 Special loads that increase the level of effectiveness of the old cartridge enormously.

(top to bottom) The 38 Special is one of the most popular cartridges for reloading and the choice of bullets is extensive. For general use in the 38 Special, cast bullets work very well and they are loaded in quantity for my Model 15. The Taurus Model 85UL is excellent for some situations, but it can not be fired as accurately as a larger 38 Special.

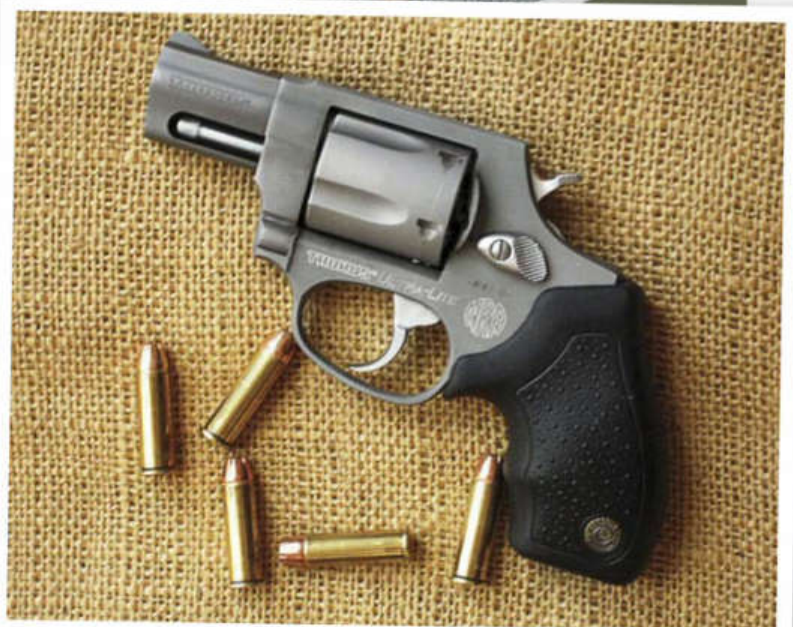
A trend in handgun ammunition is toward the use of lighter bullets that can be driven at higher velocities and thus be relied upon to expand. This movement has certainly included ammunition for the 38 Special. As a result, some of the excellent defense loads utilize 110-grain jacketed hollow point bullets. These include the Hornady Critical Defense®, Speer Gold Dot®, Winchester Silvertip®, and Federal Hydra-Shok® to name a few. All of these loads perform extremely well.

Recognizing that many people opt for a short-barreled 38 Special for defense, Speer has introduced ammunition featuring the Gold Dot® bullet that has a hollow point with a very large cavity to assure bullet expansion even at the lower velocity produced by a 2-inch barrel.

In addition to the high velocity defense loads, others are available that feature full metal jacketed bullets of several types. Such loads are good choices when depth of penetration is a concern. The 158-grain lead loads remain in production as does the target load that utilizes a 148-grain wadcutter bullet. These bullets do not expand and thus do not destroy much of the edible parts of small game. Shot loads are available, and they are quite effective on small species at short range.

The 38 Special is an excellent cartridge for the handloader, and in some long-term subsistence situations this may be an important issue. A very wide range of handgun and shotgun powders work well in the 38 Special case, and suitable bullets range from about 100 to 200 grains. Small charges of powder are used in loading 38 Special ammo so a pound of powder may load well over a thousand rounds.

With all of the types of factory ammunition available and those that a handloader can prepare, a 38 Special is an extremely versatile caliber. With a suitable revolver, one is well equipped for several survival scenarios. There may be instances in which a more powerful handgun would be desirable, but excellent 38 caliber bullets placed accurately are adequate. Frankly, except for possible situations in which large, aggressive animals may be encountered, I feel well armed with a 38 Special. It is a grand old cartridge that has certainly not outlived its usefulness. My 38 Special with a 4-inch barrel is perhaps not an ideal trail gun, but it is by no means a bad choice. **MP**



·HOW-TO·

Hopper Time!



CATCH SOME OF
THE BIGGEST
TROUT OF THE
SEASON BY TAKING
ADVANTAGE OF
FISH FEEDING ON
THESE BIG TREATS.


By Patrick Meitin



WITH THE HEAT OF REAL SUMMER UPON US THE BEST TROUT FISHING OF THE SEASON BEGINS—AT LEAST IN MY OPINION.

This applies whether you're a hard-core, catch-and-release fly-fishing "snob" like me, or a dedicated spin fisherman looking for some delicious pan-fry (which I also participate in on occasion...). Spring and early summer are normally viewed as dry-fly prime time, as various hatches of mayflies, chironomidae (midges) and caddis are prolific and reliable. These periods can offer a situation where the man with a fly rod can head out and lay down odds of out-fishing the guy with worms or hardware on a creek or river he knows well. As the dog days of summer arrive these frequent hatches can become rarer, or turn into late-evening affairs that bring you dragging home late into the night, getting that look from your spouse as they pull your over-done dinner from the oven. But late summer is also terrestrial time, success found by tossing imitations of land-borne insects that have wandered into the water—ants, beetles, crickets, wasps, bees and especially grasshoppers. Late summer is hopper time! ➔

When other patterns failed, author Patrick Meitin fooled this gorgeous northern Idaho West slope cutthroat with a foam hopper pattern, during a July fishing trip. If you're fishing during summer, hoppers are the go-to fly. *(inset)* Fishing live hoppers on spinning gear is a time-honored way to catch big trout. They can be sent to the bottom with a pinch-on sinker, or cast with a bobber and no weight. The more the hopper struggles, the more attractive it becomes to trout.



“In nearly all cases I want my hoppers to float like a cork, especially if I give them a little twitch or swim...”

This is classic hopper water. Trout hold tight under these undercut banks for the shade afforded, but also to be close on hand in case a hopper falls into the water. Only by casting and drifting your fly close to such banks will you catch fish.



(above) The easiest, most economical way the author has found to carry a good supply of hoppers onto the water is with a discarded soda bottle. A cord is knotted into the cap and a loop made to carry it on the belt.

Fly-Rod Hoppers

For many fly fishermen, hopper time arrives just in time. By July, many freestone creek's and river's water have warmed and brought an end to the most prolific hatches, leaving few choices but to fish general attractors such as the Royal Wulff, Humpy or Stimulators. Trout can prove understandably lazy, coming to the surface, at best, very early or late, mid-days sometimes proving excruciatingly slow. For those with access to spring creeks or tailwaters with consistent water temperatures and hatches running through the whole of summer, the non-stop, match-the-hatch routine with tiny specs of feather and fur can become a bit tedious. You yearn for something different, something you can actually see without the need to invest the concentration of a hunting blue heron. Hoppers bring that respite.

The interesting thing about hoppers is they seem to bring trout out of a creeping lethargy that often sets in as water temperatures raise—even the biggest fish. I suspect some trout, the biggest trout, adopt a feeding pattern much like snakes, involving fewer but larger meals. In the big picture, and excepting unique circumstances, I doubt trout are able to regularly gorge on grasshoppers. But they certainly know what they are. They pick one up here and there, a hopper falling off an overhanging tree or grass stem, or one flushed by an advancing deer or elk (or fishermen). Though, I do recall catching trout gorging on breeding cicadas (knocking each other from overhanging willow branches in their frenzy to procreate) whose stomachs seemed full of marbles. So I think trout also use these big-bug opportunities to put on fat for coming winter.

Of course, grasshoppers just don't suddenly appear in full-size form. Like any other of God's creatures they must start as little tikes and slowly mature. Though, with insects, this occurs at an accelerated rate. The point I'm trying to make is you must stock various-sized hopper patterns and pay attention to what is happening in the natural world around you. From, say, July forward, hoppers might grow in size by whole millimeters with each passing week. Early in the process a size 8 hopper might be the ticket for fooling the most wary trout. By September 1 you may be lobbing a size 2 hopper pattern. By September, as nights begin to cool, these big hoppers just might net you some of the biggest trout of the season. Big food, big trout...

In nearly all cases I want my hoppers to float like a cork, especially if I give them a little twitch or swim them through overhanging brush. For the most part this means spun deer hair and especially modern foam flies. Consistency is the biggest challenge when tying spun deer-hair hoppers. Too tightly spun and they become dense and sink easily. Too loosely spun and they soak water more readily, sinking after only a few fish. The “just right” in deer hair means loose enough to soak up some silicone floatant and trap some air to remain floating through a couple dozen fish in rough waters. Still, love them or hate them, it's difficult to beat a foam-bodied fly in this context. Pinch some Gink's floatant into the foam and they'll bob on the water's surface darn near all day. Deer hair or foam, I tie all hoppers with rubber, bowstring-silencer legs. The rubber wiggles and kicks even when on a dead drift, giving flies more life and trout-catching appeal.

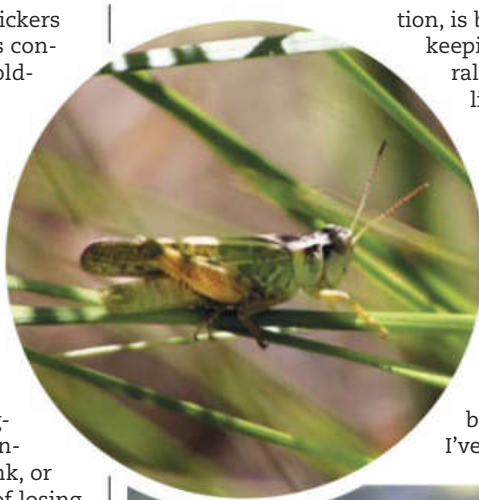


The biggest mistake I see most fly flickers commit while fishing hopper season is concentrating on standard, mid-stream holding water. It is certainly true you will catch trout on hoppers drifting past and around mid-stream boulders and logs, but give the matter some thought and it's easy to understand that where you need to fish is closer to the bank. Grassy, undercut banks and overhanging brush and trees not only provide shade from hot-summer sun, but means trout are closer to the action should a hapless hopper fall into the water. The other thing I see a lot in this bank-hugging routine are anglers acting like skinflints, too timid to cast tight to the bank, or swim flies through sweepers, for fear of losing a \$1.50 to \$2 fly.

I can assure you, sacrificing a handful of flies to roots and branches is a small price to pay for catching more and bigger trout. This is driven home each summer while fishing a particular meadow creek near home where water temperatures become marginal by July. On too many occasions, after fishing a mile of creek, aiming casts to holding water where I've caught scads of fish from over the years during spring and early-summer months, I find I've caught only a handful of small trout, believing the water is dead. But then I remind myself to cast tighter to banks, skimming overhanging grass, swimming flies through sweeping, grabbing branches, and trophy trout begin exploding on my flies. They were there all along; I just wasn't fishing the right kinds of holding water. Sure, I lose some flies, but I wouldn't catch any of those 18- to 19-inch trout (or sharpen my eye and hone my casting skills) without gambling just a bit. Trout just don't hold in open water when summer weather arrives and grasshoppers are on their mind.

Spin-Fish Hoppers

While fly-fishing grasshopper imitations is the classic hopper-time approach, spin fishermen aren't left out of the equation. Many times as a youngster, more recently while taking visiting relatives fishing, we've enjoyed awesome trout fishing after someone forgot the worms or salmon eggs or Power Bait, by chasing down stream-side hoppers and fishing them like any other bait. The standard approach is to fish them simply, with hook and split shot clamped about a foot above the hook, impaling a live hopper through the hard-shell back and casting it into the head of a deep run. Like fishing worms, the hopper, kicking and struggling to attract more atten-



tion, is bounced along the bottom, the angler keeping a sharp eye peeled for any unnatural pause or change of direction in the line to signal a sharp hook set. Trout don't stop to wonder why a hopper is bouncing along a river bottom, they just greedily snap it up. I've also found hoppers quite productive bait when used in ponds and lakes, fished just like a worm, sent to the bottom where trout congregate as surface temperatures raise. In many cases, live hoppers (even drowned ones) catch summer trout more reliably than conventional trout baits—and they're free for the taking. I've also seen anglers add a hopper to a

(above) Grasshoppers are big bites and highly nutritious, making them highly sought after by trout. Even during the hot days of summer when water warms and trout grow sluggish, a hopper will bring them to the surface.



Grasshopper fly imitations come in all shapes and sizes. All will catch fish, but it is important to roughly match the size of the hoppers near the waters you are fishing. Generally, the biggest hoppers will be found late in the summer.



(above) Hopper patterns don't need to be exact replicas to prove deadly on hungry trout, even when fishing pressured trout that have become savvy to the ways of anglers. A general, buggy imitation seldom fails to produce.

(opposite) If you're to be consistently successful catching trout on hoppers, artificial or natural, you must be willing to lose some tackle. Casting and drifting beneath overhanging brush right at the stream's edge is most productive.

trout spinner or spoon to give it natural appeal, with deadly results.

For even more spin-fishing excitement try fishing hoppers on the surface with no weight. The principal mirrors fly fishing, drifting your hopper as close to undercut, grassy banks, beneath overhanging vegetation and tree branches as possible to tempt trout lying beneath these shaded holds. But, of course, with spinning gear you'll need more than a hook and hopper to cast accurately, or at all. The best approach is a clear float, normally used to fish flies with spinning gear. Place the float a foot above the bait and toss it well above potential holding water, allowing it to float naturally along grassy banks or beneath hanging branches. You even have a bit of an advantage here, as live hoppers are generally not too happy to be impaled and sent adrift in dangerous waters. Most kick and claw at the water, giving them real-life action even wise old trout can't resist. I find it best to tie in a length of lighter line below the float, so if you do hang up in bank-side grass or branches you'll only loose an inexpensive hook and not your float. Though, it's always wise to have backup tackle. If you're not loosing tackle occasionally, you're either an angling wizard or not fishing properly. In a pinch I've tied a length of stick into my line to act as a float; which also helps pass scrutiny from the sagest trout...

Obviously you can always catch your grasshoppers as needed, right at bank side, but a little advanced planning leaves you bet-



ter prepared and fishing more than chasing bugs. If you'll wait until early morning or late evening to catch your hoppers you'll find them a lot more docile and cooperative. The hotter it becomes, the more active hoppers become, and the more difficult they are to capture. On cool summer mornings I've found handfuls of grasshoppers (and crickets and beetles) by looking beneath logs or bark in wooded settings. As evening cools, you'll often find hoppers climbing up saplings and tree trunks to soak up the last rays of sun, where they're easily plucked up.

I've tried several ways for storing grasshoppers until needed, but the easiest, and most economical, is to put them in a plastic soda bottle. These, unfortunately, can often be picked up at streamside—if you have forgotten to save one from the trash. I drill a hole in the screw-top cap with the point of a pocket knife, insert a length of parachute cord, tie a barrel knot about eight inches from the tip so it won't slip back out, then create a loop outside the bottle. As hoppers are captured they are slipped into the bottle and the lid reinstalled. The loop you have created makes it easy to wear the bottle on your belt to keep it handy and hands free. The tag end left inside



“Like fishing worms, the hopper, kicking and struggling to attract more attention, is bounced along the bottom, the angler keeping a sharp eye peeled for any unnatural pause or change of direction in the line to signal a sharp hook set.”

the bottle is used to retrieve hoppers, a volunteer normally clinging to the cord as it is withdrawn and easily grasped.

Hopper Rules

Some of my favorite hopper creeks aren't all that inspiring at first glance. These little feeder creeks and headwaters are largely passed over by anglers speeding on to bigger and better things. But here's the deal: as weather turns hotter, larger rivers often become too warm for comfort for cold-water trout. Like summer vacationers heading to the high country to get relief from the heat, trout—many of them larger than these jump-across creeks would indicate—nose up out of the big rivers and into these small streams in search of cooler, spring-fed waters. I regularly catch some of my biggest northern Idaho and western Montana cutthroats of the season (gorgeous trout taping 18 or 19 inches) in meadow creeks I can jump across in many places.

Of course the big rivers also give up their prizes during summer months. Normally-raging waters shrink to manageable size, so you can actually wade (wading wet in shorts, neoprene socks and wading boots to stay cool), work mid-river boulders or clamber over to

the opposite bank with great care. I've had some exceptional days during the hottest days of summer, tossing big, buggy hoppers made largely of foam to brave the roughest waters where oxygen content is highest and trout congregate. Hit it right and 30- to 40-fish days on the surface aren't unrealistic.

July through early September have the potential to slow trout fishing to a crawl. Trout are cold-water creatures and summer heat can lull them into a lethargy making them reluctant to take standard baits, most especially during the warmest portions of the day. A fat, juicy hopper has the ability to snap trout out of that lethargy. Whether engaged in classic dry-fly fishing or wielding an ultra-light spinning outfit, hoppers can prompt plenty of action or fast limits, and oftentimes some of the biggest trout of the season. Just remember to seek the coolest waters, be that through altitude, spring-fed runs or depth. And fish close to grassy banks and overhanging trees where trout seek refuge from brassy sun, while also staying close to the action, just in case an errant breeze or passing deer should push a hapless grasshopper into their reach. Fishing on the surface, in particular, offers explosive angling fun unlike anything else in angling. **MP**



· BUSHCRAFT ·



Hen of the Woods

By Jason Houser

A 5 BENEFITS OF EATING EDIBLE WILD MUSHROOMS

UTUMN HAS ONE VERY TASTY ADVANTAGE OVER THE OTHER SEASONS – FALL MUSHROOMS.

Every March, Americans cannot wait for spring to arrive, when they'll have their chance for morel mushroom hunting. What many hunters do not know is that fall is the time of year for an even better find – 'Hen of the Woods,' also known as maitake mushrooms. I love morels, but I love Hen of the Woods even more. They are a little richer than the morel, but I believe that is what makes them taste better.

Having had a good fall mushroom season, and still finding them, my freezer has several gallons of fried shrooms my family and I will be able to enjoy all year long. If you are lucky, you may find a fruiting Hen of the Woods as big as 40 or 50 pounds. ➡

"If you are lucky, you may find a fruiting Hen of the Woods as big as 40 or 50 pounds."



Maitake is Japanese for "dancing mushroom." In Japan, where this fungus is native, the maitake holds the title of "King of the Mushrooms," because it can grow to more than 100 pounds.



Five Benefits from Eating It

- 1) Fabulous flavor
- 2) A firm texture that lends itself to almost any culinary application
- 3) It is usually bug free, at least inside the flesh. You have to pick over it, but unless it is over the hill you will not find much in the way of bug larvae.
- 4) Easy to store. Just chop this one up into what size pieces you like to cook with and store them in freezer bags in the freezer without any par-boiling, etc.
- 5) It is good for you.

The Details

The maitake is widely variable in color, from pure white to tan, to brown, to gray. It appears to get darker under direct sunlight (just like we do). Large overlapping leaf-like fronds grow in brushy clusters that get larger with time. Each frond is from a half to four inches across and is usually darker to the outward edges of the “caps.” The entire fruiting body can be as big as several feet across. The underside of individual caps consists of a pure white pore surface. Hen of the Woods is a polypore, a mushroom that disperses its spores from pores as opposed to gills. The pores are close together and tiny, almost difficult to see. The caps are firm and juicy. The stem is thick, firm, white and branched. The spore print is white.



Filled with minerals like potassium, calcium and magnesium and various vitamins, fibers, and amino acids, it's no wonder people take maitake for medicinal reasons.

“Hen of the Woods mushroom fruits anytime from early September to late November and seems to be triggered by the first cold nights of the end of summer.”





PHOTO BY THINKSTOCK

This mushroom is an Eastern medicine gem, used in many traditional Chinese and Japanese medicines to enhance the immune system.

Hen of the Woods mushroom fruits anytime from early September to late November and seems to be triggered by the first cold nights of the end of summer. It is found mostly with dead or dying oak trees, often at the bottom, around the trunk. However, you can find them under dead Maple trees. Often they are hard to see, because their color can blend in with fall leaves. But when you find one, it could be bigger than you want to handle yourself. Look for a large rosette with spoon or fan-shaped caps. Once you find one, go back the next year and you are likely to find one again.

Not able to wait for spring morels? Try the fall mushrooms that are abundant this time of year. It's so much fun to go looking for them, but it's very important to be certain that what you have is really what you think it is and not a poisonous look-alike. Sometimes we are so excited to get back out in the woods in search of mushrooms that we get too anxious and do not make a positive identification of what we are picking. Please make sure you do. **MP**

TASTY HEN OF THE WOODS RECIPE

1 pound Hen of the Woods Mushroom
2 Tablespoons butter
2 Tablespoons olive oil
2 large shallots, finely chopped
1 teaspoon fresh thyme leaves (no stems), finely chopped
Salt and pepper to taste

Brush any soil off mushrooms and cut into 1-inch dice. Melt butter with oil in large skillet over medium-high heat. When butter stops sizzling, add mushrooms; sauté until tender, about four minutes. Add shallots, garlic, thyme, salt and pepper. Sauté two minutes and serve.

· BUSHCRAFT ·

Raising Meat Goats

HOW TO MAINTAIN YOUR OWN HEALTHY HERD FOR CONSUMPTION

By Michael Pendley

HAVE YOU EVER WONDERED WHAT THE MOST POPULAR PROTEIN SOURCE WORLDWIDE IS? You might be surprised to learn that it is goat meat. Nearly 70 percent of the world's population chooses goat as its main meat supply. Although traditionally not as popular in the United States as beef, chicken or pork, goat meat, called chevon, is gaining in popularity here as well.

Health Benefits of Goat Meat

Denise Martin, who co-owns Martin Meadow Farms along with her husband Brian, raises champion, free range, steroid-free Boer Goats. She says that goat meat is extremely healthy when compared to beef, pork or even chicken. "Goat meat is lower in calories, fat and cholesterol than other meat products, I think the health benefits have really spurred the increase in goat meat consumption in the United States in the last few years," Martin said.

The following USDA chart illustrates this:

COMPARE CHEVON NUTRITIONALLY					
3oz. (85g) of meat	Calories	Fat (g)	Sat'd Fat (g)	Protein (g)	Iron (g)
Goat	122	2.5	0.79	23	3.2
Beef	245	16	6.8	23	2.2
Pork	310	24	8.7	21	2.7
Lamb	235	16	7.3	22	1.4
Chicken	120	3.5	1.1	21	1.5

Sources: USDA Handbook #8, 1989: Nutritive Value of Food; Home & Garden Bulletin #72, USDA, Washington, DC, US Government Printing Office, 1981

“Raising meat goats can be a great way to turn a profit on a small farm or to supply your family with a year round, healthy supply of meat.”



Bred for maximum meat production, Boer goat bucks can reach weights of 300 pounds or more.



Pasture, Feed and Housing Requirements for Goats

Since goats are browsers more than grazers, meaning they tend to pick at brushy plants and shrubs more than grass, they can be maintained on a smaller scale farm than beef cattle. Land with adequate browse can support up to eight goats per acre.

Because of their foraging ability, goats are happiest in brush-covered areas. This quality makes them a handy way to clear overgrown land. Just fence off the parcel to be cleared and release an appropriate number of goats. The ground will be cleared in no time with very little labor expended.

Besides the browse and pasture available, for optimum health and meat production, goats must have supplemental feed in the form of mixed grains or goat specific pelleted feed. Winter periods will require the feeding of hay to replace the lack of forage available. Goats should also have access to a balanced blend of minerals in either loose or block form.

Just because goats don't require as large a pasture area as cattle, don't think for a second that you can get by with a lesser quality fence. Goats can run, climb, jump and crawl into places you would never dream they could go. A high-quality, five strand barbwire, woven wire or electric fence, or a combination of any two of these, is necessary to maintain your herd.

Once your fence is in place, take a look at housing for your animals. Most goats don't like to be wet. A shelter large enough to keep them dry and free of drafts is necessary for a healthy herd. Goats can be extremely territorial and sometimes claim a shelter as their own, guarding the door to keep other goats out. Because of this, many farmers prefer several smaller shelters scattered over the field verses one large barn or shelter. Figure around 20 square feet per head when designing your goat housing.

Herd Health

Health concerns in meat goats show up mainly in the form of both internal and external parasites. Goats with a high parasite load lose weight, produce kids with low birth weights and become susceptible to other diseases. External parasites include mites, ticks and lice. Internal parasites come mainly in the form of intestinal worms.

Since many parasites are spread from goat to goat through ground contact, rotating pastures on a regular basis helps to reduce infestations. Talk to your vet and set up a regular schedule for vaccinations and worm control medications to keep your herd in peak condition.



Goats require a dry, draft free shelter for optimum health. If your older female goats are protective of a large barn, several smaller shelters might be a better option.



A boer goat kid getting some attention in the barn. Boer goats are a stocky, fast growing breed that excels in meat production herds.

“Because of their foraging ability, goats are happiest in brush-covered areas.”

In order to maintain good health, goats should be given free access to a high-quality goat mineral mix. Hooves should be trimmed on a regular basis to keep the goat's feet in good shape. For male goats destined for meat production, Martin recommends castration at two months of age in order to prevent a strong flavor in the meat. The castrated bucks, called wethers, are then raised to a weight of 100 to 125 pounds before slaughter.

Predator Control

Possible predators for your goats include dogs, coyotes, bobcats and, in some areas of the country, wolves and mountain lions. Protect your herd with high-quality fencing and consider putting them inside barns or shelters at night in high predator areas.

Many goat owners choose to keep guard animals with their goatherd. The standard choice is any of the Livestock Guardian Dogs (LGD) bred for that purpose. Breeds like Great Pyrenees, many of the mastiffs, and Anatolian Shepherds, among others, have been used to protect herd animals for hundreds of years.

Besides LGDs, many goat owners choose to keep llamas, miniature donkeys or mules with their herds. These animals have a natural dislike for predators and either chase them away, or make enough noise to alert farmers when predators are in the area.

Meat Goat Breeds

While any goat can be eaten, specific breeds focus on traits that are beneficial to meat production. These meat breeds put on weight quickly, are well muscled, and have a mild, palatable flavor. The following list contains a few of the most popular meat breeds.


Boer

Originating in South Africa, Boer goats have become one of the most popular meat goat breeds in the United States. Known for their superior body shape, fast growth and high fertility rates, Boers are large frame goats with white and red colorings. Mature Boer bucks average from 180 to 300 or more pounds. Boer does normally range from 80 to 150 pounds at maturity.

Boer goats reach prime market weight at 60 to 125 pounds. Depending on the individual animal's growth rate, this weight can be reached as early as four months of age or as late as 11 months.

Spanish

Before Boer goats became popular, the Spanish breed was the most common meat goat in the United States. Originating, as the name suggests, in Spain, Spanish goats were



Goats are prolific breeders. It doesn't take long to build a sizeable herd. Try to avoid bottle feeding kids unless it is the only option. Bottle fed kids don't receive the herd education and acceptance that naturally raised kids do, sometimes leading to goats being shunned or bullied. Goats often have twins, or even triplets, allowing the farmer to build a herd quickly. Some goats have a short enough gestation period to allow for three sets of kids over a two year period.



Goats are happiest when they are with other goats. A single goat gets lonely and is more prone to get into trouble. (inset) Goats are healthiest when they have access to brushy browse to nibble on. They are a great way to clear overgrown land for future use. (top right) Goats are notorious climbers. Be careful not to place anything they might climb on near the fence. They will climb up and jump over the fence.

introduced onto the Caribbean Islands before eventually spreading to Mexico and the Southern United States.

Spanish goats are slightly smaller than Boers, ranging from 80 to 200 pounds; Spanish goats normally have a coat of long coarse hair that can vary widely in color.

Spanish goats are known to be hardy stock and can thrive under much more adverse conditions than other meat breeds.

Myotonic

Myotonic goats, also known as “Fainting,” “Tennessee Stiff-Leg,” or “Nervous” goats, exhibit the interesting trait of stiffening, then tipping over, when frightened or nervous. These fainting spells normally last from 20 to 30 seconds at a time. It has been theorized that this stiffening can actually lead to more tender meat.

Myotonic goats are smaller than either the Boer or Spanish breeds, ranging from 60 to 175 pounds. Myotonic goats are prolific breeders, often kidding twice per year.



Kiko

Bred in New Zealand specifically for meat production, Kikos are a large framed, fast maturing goat. First imported in the early 1990s, Kikos are relatively new to the American goat market, but are gaining popularity quickly.

Since they were originally bred from feral stock, Kikos are a hardy, low maintenance breed. They are known for growth rates as fast as other meat breeds from birth to slaughter size without the feed and care needs associated with other breeds.

Butchering

As with any livestock raised for meat production, once the goats have reached maturity, the process of butchering has to be undertaken. While many commercial butcher shops will process your stock for you, home butchering saves money and offers greater control over the finished product.

Goats are similar in size and formation to deer, so tools and methods designed to butcher one will work for the other. While commercial equipment is best for large-scale operations, a few inexpensive tools are all that is necessary for small-scale farms.

Knives: Sharp skinning knives are important for removing the hide and breaking down the

“Goats are similar in size and formation to deer, so tools and methods designed to butcher one will work for the other.”

primal cuts. Choose a knife with a blade in the four to six inch range, with a sharp point and slightly flexible blade. Besides a couple of skinning knives, a larger knife with a heavy, stiff blade is helpful when slicing through large roasts or separating bones from one another.

Meat Saw: A replaceable blade meat saw makes short work of sectioning ribs, cutting chops, or removing shanks from the lower leg of the animal. Look for a model with a thick handle that is easy to grip with wet hands and an uncomplicated blade replacement system.

Grinder: A meat grinder is a great way to use up the little bits and pieces of meat left over from the larger cuts. Ground meat can be used for burgers, sauces, meatballs—the possibilities are nearly endless. Hand crank grinders are the least expensive option, but require the most manual labor. Electric grinders are faster and require less labor to operate. Look for models with replaceable grinding plates so that a sharp plate can be kept on hand at all times. Easy disassembly makes clean up a breeze.

Vacuum Sealers: While freezer paper or freezer weight zip style bags will work for



Ground goat meat can be substituted for any recipe using ground beef to offer a low fat, delicious alternative. Here goat meat meatballs top a plate of spaghetti.

long term storage, vacuum sealers will keep your meat freshest over the longest period of time. Vacuum sealers work by removing as much air as possible from the bag before heat-sealing along the outer edge. Since there is very little air surrounding the bag's contents, freezer burn is greatly reduced.

Hoist: Using a hoist to lift the goat from the ground eases the physical strain associated with butchering large animals. Lifts can be hand crank models or work with an electric winch.

Raising meat goats can be a great way to turn a profit on a small farm or to supply your family with a year round, healthy supply of meat. A great way to learn more about raising goats is to visit active farms in your area. Find out what breeds they raise and if they have tried other breeds to see if they will thrive in your environment. Take a look at their fence style and ask what predator problems they might have had. Local 4-H clubs are another great source of information on goat farming in a particular location. **MP**

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Off-Grid POWER

HOW TO CONVERT YOUR STAND-ALONE
DREAM HOME INTO AN EFFICIENT ENERGY
PRODUCER *By Michael Pendley*

MOST OF US, AT ONE POINT OR ANOTHER, DREAM OF OWNING A CABIN IN THE BACKWOODS. Be it a hunting camp, a vacation spot, or a place to live for all or part of the year, such a lifestyle is appealing to just about anyone who enjoys the outdoors.

Powering Your Cabin

Despite our desire to get away from the hustle and bustle of modern life, like it or not, most of us have come to rely on the convenience of modern electrical appliances and lighting. One of the drawbacks to living off the grid, getting electric power to a standalone backwoods cabin, has been a nearly impossible task. Having utilities run from existing grid systems is an extremely expensive proposition. In fact, many utility companies will not run power to extremely remote areas, regardless of cost.

So how do you go about getting power to your dream hideaway? Generators are an option, but they can be noisy. They also require a fuel source of some type, and that fuel source has to be constantly monitored in order to assure it doesn't run out.


Today, there is another option. Solar power technology has advanced by leaps and bounds in recent years as companies introduce new solar equipment to a market hungry for more environmentally friendly options for powering homes and businesses.

Solar powered systems can be tailored to fit the individual needs of any sized cabin. With a minimum of maintenance, these systems will last for years and don't require the daily upkeep necessary with most generators. Solar power is quiet, reliable in areas with even average sunlight and environmentally friendly.

There are three main components to a solar powered electrical system. The photovoltaic (PV) modules that collect the solar energy, the battery bank for the storage of that energy, and the inverter that converts the DC power stored in the batteries to AC power usable in modern appliances. The ensuing sections take a closer look at each of these components.



PHOTO BY THINKSTOCK



**“Thanks to significant advancement
in technology, along with massive
factory expansion in countries like Asia,
solar energy today can be produced
for less than one dollar per Watt.”**



The Photovoltaic Modules (PV)

This is the feature that comes to mind when most people think about solar energy. Photovoltaic Modules collect energy from the sun by absorbing some of the sun's photons and converting those photons into electricity through the use of a semiconductor material inside the PV cell.

These PV cells can be mounted in an array, with the size of the array depending on the power needs required by the system. Obviously, the larger the PV array, the more energy it can convert in a given time period.

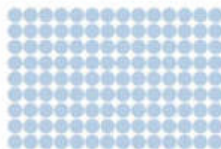
These arrays are mounted to face the sun, typically south in the United States. Many PV systems are adjustable so that the panel position can be tweaked to follow the sun's movement throughout the seasons, thus insuring the maximum amount of the sun's energy is absorbed, regardless of the time of year.

PV arrays can be mounted either on roof or ground mounts. Roof mounting systems work best in areas where trees or other structures might shade ground mounted units. While roof mounted systems lift the PV arrays above the shade, they do require a bit more work on initial installation. Most roof-mounted systems also need to be removed in the event that the roof material itself needs to be replaced.

Ground mounted systems are easier to install, particularly for homeowners building their own systems. When installing ground mounted PV arrays, pay attention to tree location and potential growth rates. While the shade from a particular tree

(above) Solar panels can be roof mounted or ground mounted remotely if desired. Mounting locations should be chosen based on the clearest line of sight to the sun, avoiding trees and buildings that might shade the panels.

(below) Companies like Harvest Energy Solutions can custom fit solar systems to your existing cabin or design, build and install a new cabin fit with a solar system.



or grove of trees might not cause a problem at the time of installation, take potential growth rates into account when locating the array.

When choosing solar panels for your project, important factors to consider are size, weight (if the units are to be roof mounted) and voltage output per panel. The higher the voltage produced per hour, the more costly a panel will be, but the fewer panels needed to provide adequate energy conversion often offsets the cost factor.

Most PV manufacturers offer warranties on their products. Quality arrays are often warranted against defects for up to 25 years. Avoid panels with a substantially shorter warranty period.

Batteries

While the PV panels produce electrical energy any time the sun is shining, there are times when that electricity will be needed while the sun isn't available. To store that energy for use at night or on rainy days, a battery storage system is necessary.

The traditional choice in storage batteries has always been deep-cycle, lead-acid batteries. The most popular choice among lead-acid batteries has long been deep-cycle flooded lead acid batteries. This style contains an electrolyte containing liquid that fully encapsulates the lead plates inside the battery.

As this type of battery charges and discharges, some of this liquid is lost through evaporation. In order to maintain the battery at its fullest capacity and increase its useful lifetime, proper maintenance is a must. Josh Bills, the Energy Efficient Enterprises Program





(left) Inverters convert the stored DC energy in the batteries into usable AC energy for modern lights and appliances. Inverters can also be used to maintain battery charge when generators are used during periods of low light.

(below) New batteries from companies like Tesla store as much energy as traditional lead acid batteries in a much more compact and visually pleasing package.



“Ground mounted systems are easier to install, particularly for homeowners building their own systems.”

Coordinator for MACED, an Appalachian Mountain-based group working to improve environmental, economic and policy issues in the area, states that regular battery maintenance is key.

“By keeping water levels filled, batteries clean and charge levels above 50 percent, a bank of high-quality deep cycle batteries can last as long as eight years, lack of maintenance can reduce that lifespan by half,” Bills states. “Since the batteries make up a significant portion of the cost of off-grid solar energy, extending the life of your bank just makes sense financially.”

How many batteries does the basic solar system use? I posed that question to Bills.

“We recommend sitting down with an experienced solar provider or consultant and figuring your individual daily power needs. Once you know how much power you will use in an average day, you can determine how much storage you need. We recommend multiplying your expected daily use times five for a total storage capacity that will last up to five days, in the event of an extended low light condition, such as heavy cloud cover.”

Bills also recommends that new solar customers look into a revolutionary battery technology that has entered the market in the past few years. Instead of lead and acid, the

new Aqueous Hybrid Ion (AHI) batteries from Aquion Energy (Aquionenergy.com) employs simple saltwater in a system that stores as much energy as traditional lead-acid style batteries in a unit that is completely environmentally friendly. This new technology does away with the explosion risks, disposal concerns, and corrosive acids that are drawbacks in traditional battery technology.

Added benefits of the new battery systems include longer lifespans and deeper discharge rates than their lead-acid counterparts.

Aquion Energy is tailor-making systems for the solar energy user. Their S-Line systems are perfect for off-grid use.

A third battery option comes in the form of Lithium Ion technology. Companies like Tesla Motors (Teslamotors.com) are adapting both new and existing Lithium Ion battery technology into new energy storage units. Their Powerwall Home Battery system incorporates the same storage ability as a large bank of lead-acid batteries into a much smaller and sleeker unit that can hang on a garage wall. These Lithium-Ion batteries are less sensitive to temperature extremes than old style batteries and require much less maintenance to keep up peak performance.

Inverter

The third key component in an off-grid solar power system is the inverter. Since batteries store power as direct current (DC) and modern electrical systems and appliances are designed to use power in the form of alternating current (AC), an inverter is installed between the battery bank and power outlets. This inverter converts the current into usable electricity.

Inverters also protect appliances from possible power surges from batteries or lightning strikes by buffering the energy output. Choose the size of your inverter based on your projected power usage needs.

Many inverters also allow additional power input from AC power sources such as generators in order to provide additional charging sources for batteries should the solar panels function at less than maximum output due to low light conditions.

Full System Options

While solar energy can certainly provide all of the power needed in an off-grid living situation, many users prefer to incorporate solar as one aspect in a full power system. Large energy consumption requirements like home heating, hot water and cooking needs can be handled with either gas or wood fired burners and stoves. Passive solar water heaters and storage units can handle the hot water needs of a family without using electricity. Solar



ovens can handle a large portion of cooking needs with no added electricity.

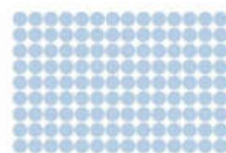
Often natural gas or diesel generators are incorporated into the electrical system to provide backup power during long periods of low light or to power high-energy use needs like larger appliances. If a generator is wired permanently into the electrical system, it is a good idea to consult a professional electrician for installation in order to prevent damage to either the inverter or generator.

One option that is gaining popularity among solar energy users is the ready to use, self-contained modular systems from companies like



(above) Companies like Harvest Energy Solutions can not only supply a complete solar energy system, they can build an energy efficient cabin to go with it.

(left) A complete energy storage system from Harvest Energy includes a battery bank, inverter, monitoring system and breaker control box.



“Solar ovens can handle a large portion of cooking needs with no added electricity.”

SolarPod (Mysolarpod.com). Their Standalone units contain everything needed to power an off-grid cabin. Upon arrival, the user simply unpacks the unit, completes assembly, and then points the unit toward the sun. These units also contain batteries for storage of the produced electricity and an inverter to convert the electricity into usable current.

Another company offering ready to use systems is Harvest Energy Solutions (Harvestenergysolutions.com). In addition to ready to use systems, Harvest Energy also sells energy efficient cabins and can customize a solar powered cabin to fit your needs, then deliver and install the cabin on your property.

Besides the ease of installation, these self-contained units are adjustable to allow maximum sun exposure throughout the year, regardless of season. They are also portable in the event that the owner wants to move them to another cabin or location. Certain Solarpod Standalone models also allow for expansion in the event that your power needs increase over time.

Costs for off-grid solar systems can range from \$500 for small systems designed simply to charge a laptop or cell phone and provide light, all the way to \$30,000 and up for whole house systems designed to produce enough power for an average family home. Most areas have solar energy consultants that can help you decide on the system that best fits your needs.



(left) PV panel mounting systems like the Solar Tree can be adjusted to maximize sun exposure year round. To adjust for changing seasons, simply tilt the PV array to follow the sun's path through the sky.

(above) New battery technology like the Solar Aquion makes use of saltwater instead of acid to form a safer, more efficient and more environmentally friendly battery for solar power storage.



Jack Barnett is the Chair of the Kentucky Solar Energy Society. When asked about the main requirement to live off-grid with solar power, he replied, "Mainly, the commitment to both minimize your electricity needs, while at the same time synchronizing those needs with the maximum power production times from your system."

Barnett went on to say that we are in a time of rapid advancement in solar technology, while at the same time seeing significant lower costs for the equipment needed to provide the power.

"Thanks to significant advancement in technology, along with massive factory expansion in countries like Asia, solar energy today can be produced for less than one dollar per Watt. That is a 60 percent drop in just the past five years. Panels today are producing the same amount of power from a much smaller unit, making it more convenient to install rooftop units. Couple that with the new battery storage technology advancements, and it is a good time to invest in solar power." **MP**

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Bear Protection

HOW TO AVOID, EVADE, AND HUNT ONE OF THE MOST POWERFUL MAMMALS ON EARTH.

By Charles Witosky

WHETHER YOU LIVE IN A HEAVILY FORESTED AREA, THE DESERT, NEAR LARGE LAKES, OR REALLY ANYWHERE IN NORTH AMERICA, THERE'S A CHANCE THERE IS A BEAR POPULATION NEAR YOU. Living in a secluded area increases your chances of a bear encounter - even more so while camping. Hopefully you don't go camping in a bear sanctuary, but if you do there are a number of precautions to take so that you don't become the victim of a bear attack. ➡



Be Informed

Before you can effectively avoid a bear encounter and protect yourself in the event of an attack, you must learn as much as possible about bears and how they live. While it is best to do independent research with your local wildlife authority, here's a starter's guide for the bears you are most likely to encounter:

American Black Bears

American black bears are the most pervasive bear species in the United States. According to the International Union for Conservation of Nature, there are more than 700,000 black bears in 40 of the mainland United States and an additional 300,000 in Alaska. There's a chance you could run into one of these no matter where you live. These include 16 different living subspecies of the American black bear, from the Olympic black bear in Northern California to the Florida black bear, which populates many southeastern states.

While the American black bear has a heavily vegetarian diet, it will eat young deer and moose if given the opportunity – including finding an already dead carcass. American black bears in the north eat more voraciously during the summer months as they hibernate for up to seven months of winter, whereas American black bears in the south normally hibernate for two to three months and sometimes don't hibernate at all due to the availability of food year-round.



(above) Due to their smaller size and non-retractable claws, black bears are natural climbers.

(below) Although often solitary, grizzlies will gather together around streams and rivers during the salmon spawn.

According to the North Carolina Wildlife Resources Commission, the American black bear regularly tops out at 400 lbs. for females and 500 lbs. for males. This PCI 4 combined with their non-retractable claws makes them fast and effective tree climbers. They also have the ability to run at upwards of 25 mph.

Their sense of smell is keen, seven times as powerful as that of a dog. This explains why scratching and rubbing their bodies against trees is the most common way for the bears to communicate with one another. Their vocal sounds fall into two categories: aggressive and content. Aggressive sounds include roars, snorts, woofs, and growls. Content sounds include pants, mumbles, and squeaks. Within families, the cubs have a distinctive cry (a high-pitched whine) that their mothers can easily recognize when they are separated from one another.

Most importantly, they are not an aggressive species. The only time they will attack is when they feel threatened. Feeling threatened includes being startled, fearing for their cubs, or making sure a potential food source (i.e. an animal carcass) is not taken from them.

Brown Bears

Brown bears do not live in the vast part the United States. They primarily populate the Northwestern United States, Western Canada, and all of Alaska. There are 17 different subspecies of brown bear, but only seven of these live in North America. While there is a smaller population overall, it's important to note that there are more than 3,000 Kodiak bears, a subspecies of brown bear, in Alaska. The Kodiak is



the second largest bear on Earth with only the polar bear surpassing it in size. There are no predators of any subspecies of brown bear.

The brown bear is also omnivorous, but due to its size it relies more heavily on an animal diet. They eat leaves, grass, bugs, lots of salmon, and many animals, including deer and sheep. Some brown bears are even known to eat smaller black bears. Brown bears that live in close proximity to large human populations become accustomed to being able to find food in landfills, dumpsters, and open trash cans. They hunt and eat constantly, always storing up fat for their long hibernations in the winter, which, depending on how far north they live, can last up to six months.

While each subspecies of brown bear varies in size, each is large. From the grizzly bear to the Kodiak bear, their size ranges from 700 to 1,500 lbs. Their size, combined with their long and straight nails, prevents adult brown bears from being able to climb trees. Brown bear cubs are able to climb trees and often do if they are scared or if their mother is not around. A full-grown brown bear is able to run at up to 35 mph (ncwildlife.org).

While the brown bear's sense of smell is as strong as that of the black bear's, the brown bear uses its sense of smell to hunt more than to communicate with other bears. One brown bear will rub itself on a tree to let other bears know that it has been there. Male brown bears are incredibly territorial and often fight over food or females.

Scent on trees is useful to bears, telling them what other bears have been there, but is most useful to cubs. A grown bear will often kill a mother's cubs so that it can mate with the mother. If a grown male bear is attacking a cub, the cub will rub itself on a tree that the grown male has rubbed itself on to pick up some of its scent, as the grown males are less likely to attack a cub that smells like them.

Brown bears communicate with a larger array of sounds than black bears. Aggressive sounds are growls, roars, woofs, champs, and smacks. Non-aggressive sounds include some woofs, grunts, and bawls if they're in pain (ncwildlife.org).

Finally, as a primarily nocturnal species, you will find them wandering around at dusk and dawn looking for a place to sleep, and hunting and traveling at night.

Protect Yourself At Home

The best way to protect yourself at home is to make sure your house is not a place that bears come looking for food. This is easier said than done, especially if you live in bear country.

“The best way to protect yourself at home is to make sure your house is not a place that bears come looking for food.”

Brown bears are the one of the biggest of the animal kingdom, with nothing else above them on their food chain.

Don't leave any kind of food out. This includes any kind of bird or rabbit food, fruit trees, gardens, compost, or pet food. If you think that squirrels eating your bird food and vegetables are bad, then you can imagine what a bear would do.

Bear-proof trash containers. Recycling containers, too. While you can buy specially made containers that are relatively inexpensive, there are other ways to effectively protect your trash. To begin, don't take your trash outside until it's necessary. It would be ideal to store your garbage cans in your garage or in another indoor area. If they're outside, make sure that each bag of garbage is completely tied off and sealed so that no odor escapes the bag. As for the trashcan, if it's not specially made to be bear-proof (highly recommended), then you can build and attach a latch system yourself. Just make sure that it's a system that only human hands can open and close. Make sure that there are no gaps between the lid and the actual can. Putting your trash cans behind a sturdy gate is also helpful.

Noise. Bears don't like it. Setting sprinklers and electronic noisemakers is a good way to keep a bear from approaching your house in the first place.





(left) Any food will attract bears – even the scent of perfume might send some your way. Keep all food securely sealed and away from your camp and or inside your house.

(left, below) Make trash-cans bear proof to conceal scent and access.

(bottom) If a black bear is getting to close, you can deter it with loud noises. Take more caution with brown bears, by walking away, if possible.

“If bears know there are humans around, they’ll stay away.”



Don't leave animals outside. Dogs and cats can be seen as prey, but more likely if a bear is passing through your yard and a dog barks at it, the bear can be startled and become aggressive. Walk your animals on a leash and watch them when they're just outside off the leash.

Close all windows and doors, and any other entrance wide enough for a bear. If they smell food, they will get to it any way that they can.

Protect yourself while camping

Be extra informed. While you may know all about the bears around where you live, there may be an entirely different species where you go camping. Find out how many live there, whether they are used to humans being around, how many attacks have occurred in that area and when that species hibernates.

Wrap up your food while hiking. If it's important to cover your trash so no smells escape, it's even more important to make sure your food is in multiple layers of plastic or cloth and buried deep inside your bags. Otherwise you'll be leaving a scent trail back to you.

Don't wear pungent scents. No perfume or cologne and use odorless body wash and shampoo. Bears can smell this and be attracted to it from miles away.

Be noisy. This is the most important thing you can do while in bear country. If bears know there are humans around, they'll stay away. More importantly, though, when you turn a corner and find a bear right in your path, the bear won't be startled because it will have heard you approaching for a couple hundred yards. Again, one of the main triggers of bear aggression is surprise. They will think that you've been sneaking up on them to hurt them and will attack. So while you hike to your campsite, talk as loudly as you can, sing, break sticks, anything – just don't hike quietly.

Be observant. The top three things to look out for are trash, human food, and animal carcasses. If you see any of these, get away from there as soon as possible. Pick up the trash if you have a safe container for it.

Watch out for cubs. These are in their own category of things to look out for because if you see a bear cub, not only is the mother bear looking for it, but if it gets scared it will start crying and will attract the mother bear even faster. If you see a cub, go in the opposite direction.

When setting up camp, keep to open areas. Try to stay away from any river, as well. Bears look for both food and water there. With an open area to camp, you can set up a fire and have a good view of your surroundings.

Keep your food as far away from your camp as possible. Up to a mile away. It might be a



hike if you need to eat, but it's better than waking up to a bear rummaging through your bags in the middle of the night. If possible, bury your food underground or hang it from a branch that could not be easily reached by a bear standing up or climbing a tree.

Don't leave a trace. Once you're heading home, clean up all your trash and burn the food that you aren't going to eat or take with you. This isn't as much to protect you, as it is to protect the campers that come after you, as well as to look out for the environment.

Always have bear spray handy. Regular pepper spray works, but not as well as pepper spray designated for bears. You hope you never have to use it, but you must always be prepared.

So you've run into a bear

It's happened. You're odorless, you've protected your food, and you've made plenty of noise, but when you look around a tree, there it is, an 800 lb. bear looking you straight in the eyes. You're both frozen for a few seconds. For those few seconds you should be thinking about your next move.

Stay calm. While you should stay calm in every dangerous situation, it's extra important right now. Bears not only smell fear, but also respect authority. If you show that you are not afraid of them but are also non-threatening, they will do the same for you.

Walk away. Always move in the opposite direction of the bear. Don't turn your back. If you run, you will startle them and they will turn violent.

If it stands up, it is not attacking. It's just curious. It's trying to get a better look at you and assess whether or not you're a threat.

If it walks toward you, speak with authority. Tell it to walk away and that you're not a threat. Speak as though you're speaking to a dog or troublesome child. The bear will understand your tone of voice and know that you are not afraid.

If it charges toward you, use bear spray. Stand in place and spray in the bear's direction for 6-7 seconds. The bear should react to the spray and stop in its tracks, pawing at its face. It is then okay to run away from the bear. (ncwildlife.org)

If it strikes you, play dead. Lay face down and put your hands on top of your head. Anchor yourself to the ground so that the bear cannot flip you over and hope that it leaves.

Bears don't want to hurt you. They are not an aggressive species and don't want anything to do with humans. So long as you keep away from them and do everything in your power to not attract them, you are not likely to be a victim of a bear attack. ■

BEAR HUNTING

➤ While most of the time you're trying to avoid bears, there are times when you might be looking for a challenge or want to try a new meat. In either case, grab a group of friends and a shotgun and head on the trail to catch a bear.

Know when to hunt

Your state or county has restrictions on when you can hunt large game. You will need a new big game hunting license each year. You can access all the relevant information for your state or county online or with a local authority. Additionally, research what time of year you're likely to find bears roaming about.

Know where to hunt

Again, your local wildlife authority will tell you where it's legal to hunt, but it's more important to know where large populations of bears actually live. Your first tip: likely around water sources.

Go scouting

Bears of any species are incredibly hard to track and you likely won't find a large number of them on your first trip out. That's why it's important that you go on one or more scouting trips in which you camp out in a safe area and watch your surroundings for an entire day. On this trip you should take as much precaution as you would on any other camping trip and even take your gun, just don't expect to shoot anything that day. What you're looking for on this trip are the habits of as many bears as you can spot. Where are their regular feeding areas? What specific times do they eat? Can you tell its gender? Anything you can note about the behavior of the bears will be invaluable when you set out to hunt.

Know how to hunt

There's one more legal stop on the way to hunting. Your wildlife authority will tell you if and how you're allowed to bait bears, how many bait stations you may set up, and what bears you are allowed to shoot should they approach your bait site. They will also tell you where you should set up your signs indicating that you're hunting.

Come prepared

Wear no scents, eat before you go, and wear clothes that make as little sound as possible— anything to maximize your chances of hiding yourself from a bear.

Set up your post

The safest and most effective way of shooting a bear is in a tree stand, no farther than 20 yards away from your bait, with sufficient cover from foliage. Make sure that your stand is secure and that you are not likely to fall out. A harness is often helpful.

Set up your bait

The best bait system is one that dispenses food a little at a time with the bear having to work to remove the food. A hole cut in any closed off container will work. Set up the dispenser so that when the bear is eating from it, its front side is facing you.

Go early or go late

Dusk and dawn are when you're most likely to find a hungry bear. Set up before either of those times so that by the time they're looking for food, you've been hiding for a while.

Be prepared to wait

You might not find a bear on your first outing, and that's okay. You'll learn what it's like and the patience that it takes to hunt one of the most powerful animals on earth.

Be prepared to shoot

When a bear does approach your bait, shoot it twice in the chest, hopefully in its lungs. They're incredibly powerful and tough and if you miss or don't hit it correctly, you can seriously wound it, possibly angering it and causing an attack.

Be safe and enjoy

Enjoy the hunt and enjoy the reward. Whether you're doing it for a trophy or for its meat, hunting bear is an incredibly rewarding experience. It takes a skilled and patient hunter to do it successfully, but when you kill one, take heart in knowing that you have taken down one of the most feared animals on earth.

• GENERAL •

Dry Farming Techniques

NATIVE
AMERICAN
TIPS FOR
EFFICIENT
DROUGHT
FARMING.

By Dana Benner

DESPITE AN ABOVE AVERAGE SNOWFALL DURING THE PAST WINTER, THE SPRING WAS VERY DRY. By the middle of May, New England was already having temperatures in the high 80s and we were in drought by the start of June.

I've lived in New England my entire life and I have never seen it this dry, this early in the year. Oh, we get our dry spells, but it isn't usually until the middle of July. This year was very different. Just watch the evening news and you will see that this sort of thing is happening all over the country. Places that usually get very little rain are flooding and places, like New England, that get a great deal of rain are getting none.

The world is changing and we need to change with it. That means learning to deal with dry conditions. To do this, I made plans to travel to Arizona, hoping to learn from people who have faced these conditions for generations. ➡

PHOTO BY THINKSTOCK



How the Hohokam Did It

Long before the first Europeans, namely the Spanish, set foot into what was to become Arizona, the Native people of the area survived by hunting, gathering and growing crops. A few thousand years ago, the Hohokam people farmed the area that is the Sonoran Desert. Here they would line the slopes of the dry hills horizontally with rocks, forming a sort of multi-terracing effect. These stone walls would act as temporary dams to slow the water as it flowed off of the slopes during the annual summer rains. In the areas between the rock walls, the Hohokam would plant wild plants they used to sustain themselves, with the primary plant being the agave.

To learn more about the Hohokam and the Native groups that came after them, namely the Akimel O'odham and the Tohono O'odham, I visited the Arizona-Sonoran Desert Museum, located just outside Tucson, Arizona.

The first lesson I learned from the Hohokam people was to plant or grow crops that are well suited for the environment you are in. In this case, the plant was the agave. Another plant that does particularly well in this extremely dry and hot environment is the chili.

According to the museum, the Akimel O'odham people lived near rivers and dug canals to water their crops. The Tohono O'odham people moved their villages seasonally to known water sources and relied more upon the yearly rains to provide water for their crops. To get the most from the rains, the Tohono O'odham would farm near large washes and form walls and fences to funnel and hold the water as it filled the washes. This is a very similar concept to modern farmers and gardeners using cisterns to gather and hold rain water. I use a cistern on my property in New Hampshire and it has seen me through minor dry spells more than once.

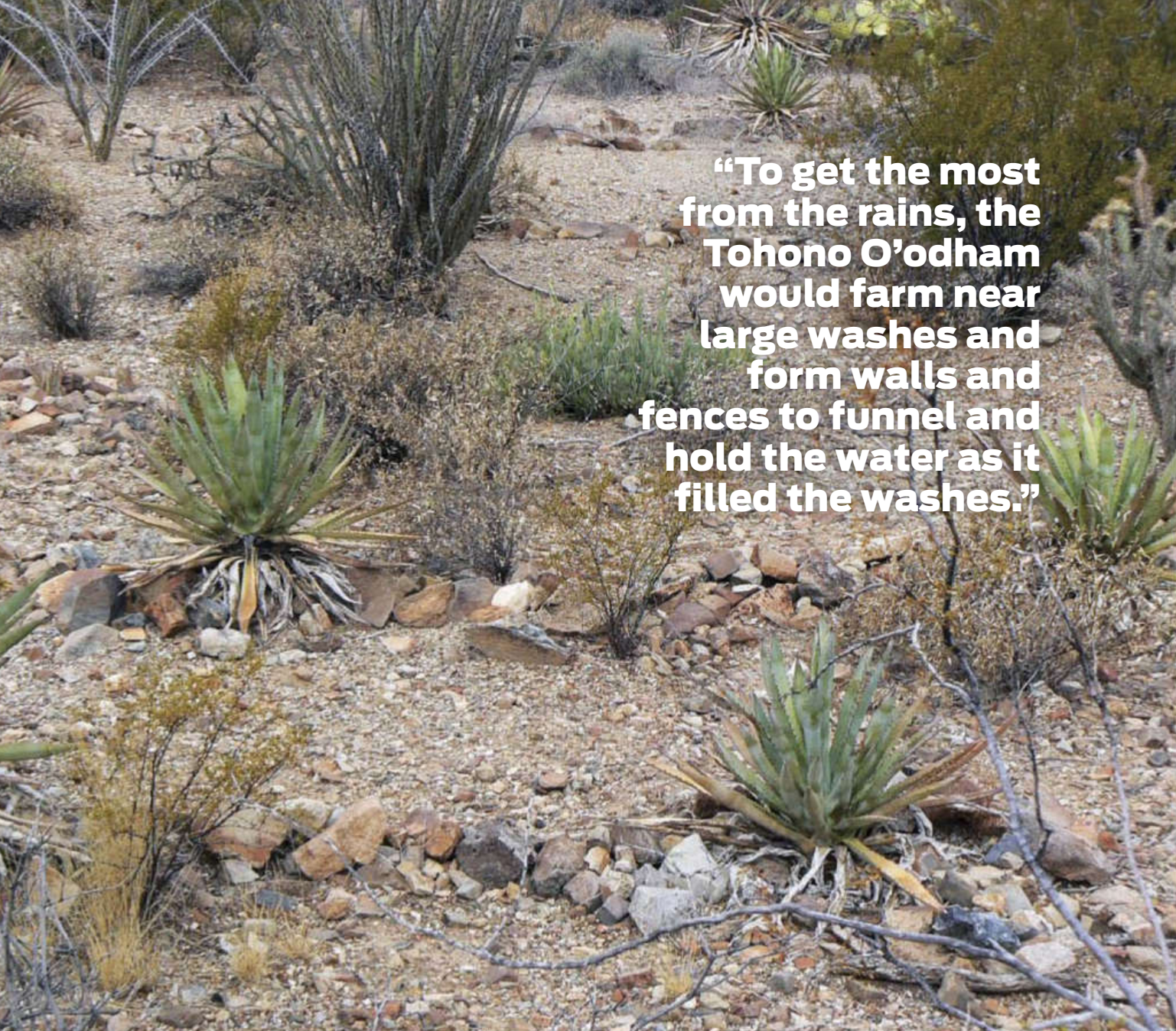
Like many Native people of the Americas, the Tohono O'odham cultivated crops such as corn, beans and squash, and domesticated wild growing plants like the chili. Over time, these people, as well as the Pima, Mohave, Quechan and Cocopah peoples, developed strains of beans, corn and squash that were drought-resistant and heat tolerant. The plants do not grow very large compared to their modern cousins. They do not have super large leaves, nor do they have, especially in the case of corn, large fruit. The crops of the



(above) A modern example of native American style, desert gardening.

(left) Agave is multi-functional plant, having been used for its meat, drink and fibers for clothing and writing.





“To get the most from the rains, the Tohono O’odham would farm near large washes and form walls and fences to funnel and hold the water as it filled the washes.”

Native people here needed to be fast growing and produce many seeds, which they did. A good example of this type of selection is the Tepary bean. These beans only need occasional watering, love the hot and dry conditions and can be used the same way that kidney, navy and pinto beans are used today.

Planting for the Tohono O’odham begins in late June or early July when the first summer rains come. Most of the planting is done by hand, using a planting stick. The soil is not turned, as we would do here, as the disturbed soil will allow for greater evaporation. This shows the respect and connection they have with their environment.

Hopi Farming Style

From the Sonoran Desert, I travelled north into the Grand Canyon area (also know as the High Desert.) While the temperatures here tend to

be a little cooler, the area still gets very little rain. It is here that the Havasupai, Navajo and Hopi people are found. Like the Native people of the south, these groups have adapted their farming methods to meet the ever-changing environment that they live in. Here the average annual rainfall can be 12 inches, but they do get snow in the winter. Despite the lack of moisture, the Hopi farmers are able to grow corn, beans, squash, melons, peaches and sunflowers, with their main crop being corn. While the Havasupai grow all of the aforementioned crops, they are best known for their sunflowers. The Navajo are both farmers and sheepherders. So how do they do it?

It is called understanding the environment and working with what you have. They use a technique for farming called dry farming and while so many Native peoples do it, the Hopi have perfected it. By using wide spacing be-





tween plants and planting the seeds at a perfect depth, perhaps a foot or more, which they discovered over time, the Hopi are able to produce enough crops to sustain themselves as well as produce enough seed for the next year's planting. This is unlike other Native people, who plant corn and other crops in mounds. The Hopi found that mounding allows the soil to dry out quicker, thus defeating their whole purpose. The wide spacing between plants allows room for the farmer to keep the weeds from robbing their crops of valuable moisture and keeps the individual plants from "fighting" over that same moisture that is in such short supply.

Hopi gardens are usually typically relatively small and are made in the dry washes and valleys that separate the mesas. Planting starts in April to coincide with the snowmelt and harvesting happens in September or October. Like the Tohono O'odham, the Hopi use planting sticks to make the holes for the seeds, disturbing as little of the land as they can. The sticks are made from either ironwood or oak. They are rounded on one end and either pointed or wedge-shaped on the other, with the pointed end being used to poke a hole in the soil.

Comparing to Modern Techniques

While in North Central Arizona, I made a stop at Mortimer Family Farms, located in Dewey, Arizona, to see how modern farmers cope with the extremely dry conditions. Mortimer Family Farms covers 324-acres and grows squash, Swiss chard, pumpkins, lettuce, cabbage and tomatoes, but they are best known for their sweet corn. On another piece of land, the Mortimers raise cattle, pigs and chickens, as well as grow hay. All of the animals are free ranging, with the cattle and pigs being fed the grasses and grains grown right on the property. The finished meat products and eggs are sold at their store in Dewey.

According to Andrea Phillips, manager of Mortimer Family Farms, "We are well aware of the current environmental changes that are happening. For that reason we concentrate on educating people, particularly the younger people, on proper conservation and farming practices. There are way too many people of all ages that have become disconnected from the land. Many really have no idea where their food comes from."

Here, planting doesn't start until sometime around the middle of May and unlike the Hopi who keep a large space between plants,

(above) Fields at Mortimer Family Farm.



Mortimer Family Farms limits the space between their plants. This helps to shade the soil and prevents excessive loss of moisture due to evaporation. It also helps to keep down the weeds and increases yield from the same amount of land.

Knowing what I did about the Native farmers, as I made my way through the property I asked Andrea what the secret was to not only farming in this dry climate, but also to the way they farm compared, to say, the Hopi. Her answer was very simple: “water.” She told me that while surface water is lacking in many areas, there is a great deal of ground water and Mortimer Family Farms is blessed to sit on top of a very large aquifer. Despite this, she emphasized the need for proper water management.

“We don’t waste the water. We water during the cooler parts of the day and we don’t water all of the fields every day,” Andrea said.

Touring the fields painted a good picture of the major part water plays and how the people at Mortimer Family Farms get that water to the fields. Located near the fields are man-made holding ponds. Every few days the holding ponds are filled using pumps from the numerous wells that have been drilled throughout the property. The water in these ponds will last a few waterings and occasionally, the summer rains refill them saving valuable ground water. It is from these ponds that the fields are watered.

They only fill the ponds as needed and only when they plan on watering fields near the pond. This keeps water loss from evaporation down to a minimum. When a field is to be watered, a long hose, similar to a fire hose, is laid

“Hopi gardens are usually relatively small and are made in the dry washes and valleys that separate the mesas.”



(below) Holding pond at Mortimer Family Farm.

in a trench that runs lengthwise down the side of the field. All along this hose are valves that can be opened and closed that line up perfectly to the trenches that run across the field. A pump moves the water from the holding pond, through the hose and into the trenches. Once the field gets a good soaking, the pump is turned off.

Three Solid Tips

Despite the many ways of dealing with drought farming, there are many similarities between the groups. Whether it is the process of Native people or farmers like those at Mortimer Family Farms, farming is more than putting seed in the ground. It is a spiri-

tual experience where the environment is not only respected, but also revered. Water is a precious resource, the giver of life, and it needs to be treated as such.

So what are the lessons I learned and more importantly, what can be transferred to other areas?

Water is probably the most precious resource we have. Residents of Arizona, Native and non-Native alike, know this. Unlike California, Arizona has no watering bans. With proper management, even limited water supplies can be enough.

Proper land management goes hand in hand with water management. Farmers need to adjust their farming practices to do things that help the soil retain moisture. This could be adding organic material to the soil, rotating crops and fields, or planting crops closer together. The use of cisterns, terracing and holding ponds need to be put into greater practice.

Crop choice is a very big thing. Look at the crops you are planting. Stay away from all of those super hybrids on the market. Stick to heritage seeds or even try growing some of those varieties grown in the desert. Those seeds are able to naturally sustain themselves in drought conditions and are also resistant to diseases and insects. Grow crops suitable for your area. Some plants need more water than others. Choose your crops carefully.

Every year drought seems to affect more and more people across the country. No need to despair as things can be done to combat this issue. We (those of us who are living in areas not known for severe drought conditions) need to learn from others and adapt to the changing conditions. This article is not the only answer out there, but I do hope that it has given you some ideas as to what you can do. **MP**



· SELF-RELIANCE ·

Keep Naked Chickens Warm

By Kristi Cook

PHOTO BY THINKSTOCK





AUTUMN SIGNALS A TIME FOR CHANGE. SMOLDERING AIR TURNS CRISP AND COOL. GREEN TREES BURN ORANGE AND GOLD. AND SOME CHICKENS GO COMMANDO.

WHILE MOST CHICKENS ARE SO DISCREET IN THEIR CHANGING OF FEATHERS THAT THE ACT GOES UNNOTICED, REBELS BARE ALL FOR THE WORLD TO SEE. As with most rebellious acts, however, there are consequences. When fall changes abruptly to bitterly cold winter, naked chickens find themselves struggling to keep warm while rebuilding their plumage. Keeping these nude birds warm through winter can be a challenge, but not impossible with a little know-how. ➡



Some chickens molt seemingly from head to toe simultaneously and require additional warmth even during breezy but cool days.

A WORD ABOUT CHICKEN SADDLES

➤ Chicken saddles are just what they sound like—miniature saddles made from sturdy cloth or canvas worn over the area you would place a saddle if you chose to ride a chicken. However, these saddles have no horns, stirrups or girth straps. Instead, both the left and right sides have a loop of material through which you slide a wing to keep the saddle astride the chicken. While originally intended to keep a rooster from harming his favorite lady, chickens with backs assaulted by bullies also benefit from their use. Saddles are generally inexpensive and can be found online. Templates for creating your own are also available online and in some chicken caretaking books. Just be sure to check frequently for proper fit and to detect possible mite infestations, as mites seem to like the darkness created by saddles.

Causes of Feather Loss

First, you need to determine the cause for feather loss and take appropriate actions to ensure rapid growth of new feathers. Fortunately, once they're feathered out properly again, most chickens keep warm with minimal help.

Molt

The most common cause of feather loss is the annual molt. Fall's reduced daylight hours and lower intensity sunlight triggers the loss of old feathers and growth of new ones.

Beginning at the head and working its way down, natural molting often makes chickens look as though they had a run-in with a blind barber, while others merely experience minor balding. If you gently pull the remaining feathers back, you will find a patch of pinfeathers pushing to the surface to cover bare spots; the complete replacement takes from six to 16 weeks.

However, stress from disease, lack of water and feed (even for only a few hours), getting chilled, or sudden removal of coop lighting can cause unseasonal, or abnormal molting. This stress-induced feather loss may not follow the head to toe sequence of annual molting and often results in slower or non-existent development of new feathers unless the stressor is removed. The reduced speed of feather replacement, or the lack thereof, leaves chickens especially prone to injury or death as the mercury drops and must be remedied as quickly as possible while incorporating significant measures to keep the flock warm.

Cannibalism

Many chicken caretakers, particularly newbies, misdiagnose naked or patchy chickens as being in molt. However, close inspection of the flock's daily activities often reveals a mild, but not harmless, form of cannibalism known as feather picking. Victims usually have bare patches, which at times may be severe, out of sequence with molting with little to no pinfeathers present. Should pinfeathers begin to push through, you will find they quickly disappear. Given enough time, chickens can lose so many feathers they are virtually ready for the oven.

Feather picking is usually caused by bored or crowded chickens. The occasional bully might also discover the joys hidden in plucking another's feathers. Others find themselves drawn to a flock mate's feathers (or their own) in an effort to obtain much needed protein when the daily protein ration is insufficient. Even mice and rats are attracted to protein-rich feathers, nibbling the ends or entire



Be prepared ahead of time to provide additional protection during inclement weather. Once snow, ice, or freezing rain fall, modifications become more difficult.

feathers while chickens roost at night. Therefore, vigilant rodent removal, adequate space, a well-balanced protein-rich diet, foraging, and bully removal are essential to avoid/correct cannibalism.

Love Bites

While technically not a form of cannibalism, let's not forget the love embraces of a 'lively' rooster. While most roosters cause no harm to their harem during mating, some become over zealous and pluck or pull large quantities of a hen's feathers. Should the unlucky lady be his favorite, she will likely not only be wounded, but bald in the head, neck, or shoulder regions and will need to be removed or saddled until feathers are replaced.

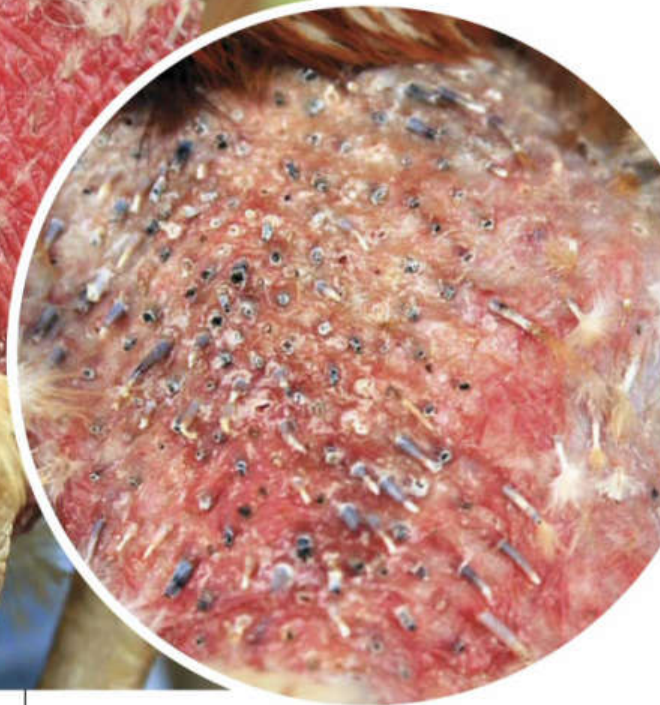
Parasites

Mite and lice infestations also result in feather picking as chickens seek relief from irritation and itchiness. While mites are often

“Fall’s reduced daylight hours and lower intensity sunlight triggers the loss of old feathers and growth of new ones.”

difficult to see, close inspection will reveal dark red, black, or tan specks crawling around the vent area and/or along the body, particularly around feather shafts. Some mites prefer to hide in the coop during the day, so a night-time visit with a flashlight in hand to inspect the birds may be necessary. If you can't make a coop visit at night, you may be able to see small specks of blood-filled mites crawling along the roost or hiding in nesting boxes dur-





“Providing supplemental heat has always been, and will continue to be, a controversial subject among chicken owners.”

ing the day. Lice, on the other hand, spend their entire lives on hosts and can be readily discovered by gently brushing feathers back and looking for tan or white lice crawling along the body. You will also see lice eggs, or nits, attached to the base of feathers.

Left untreated, infestations lead not only to significant feather loss but also to weakened, sickly, and even dead birds. Approved treatments regularly change and depend on whether chickens are show birds, meat birds, or egg-laying birds, so a trip to your local veterinarian is your best option when selecting insecticides.

Promote Feather Growth

Feathers consist of approximately 85% protein, so feather growth creates a protein deficit when molting chickens (or any chicken actively growing feathers) are fed the typical 16% protein layer ration. Most birds compensate for

(top, left) Pinfeathers may appear sporadically on some birds. However, this is often an indicator of feather loss caused by something other than molting, such as feather picking or bullies.

(top, right) Close inspection of areas with pinfeathers disappearing due to feather picking will have empty pinfeather shafts or blood oozing from shaft ends.

the higher protein demands by either reducing or completely halting egg production until plumage is completely regrown. However, you can help your flock along by switching to an 18 percent protein feather grower feed for both hens and roosters over the age of 16 weeks. For many hens, this small increase is all that is needed to speed along feather growth while allowing better egg production throughout the process. You can return to layer feed once the flock is feathered out.

In addition to switching to feather grower feed, don't overlook allowing chickens to supplement their own diet, when possible, by foraging for worms, grubs, and other protein-rich snacks. Offering mealworms, non-poultry meat scraps, night crawlers, small amounts of cat food or other animal protein also works well.

Add Some Warmth

Once you've determined the cause of feather loss and made adjustments, your work really begins, as I quickly discovered with my first flock. My pullets decided feather picking was great fun just weeks before our winter turned unseasonably cold with record snow. Not only did I have no idea what the cause was, I found myself scrambling to provide protection when the temp suddenly dropped to 19°F. So make plans ahead of time and acquire necessary materials to keep your naked chickens warm through winter, since many of these birds may not be able to replace sufficient feathering until spring arrives.

Through Feed

To stay warm, chickens require more calories during cold weather than during warmer months. When significant portions of plumage are missing, their energy needs are even higher. To help them meet these needs, be sure to always allow free choice food and heated water. Supplement with a handful of scratch grain an hour or so before your flock goes to roost. The added heat created during digestion will help warm them during the night. After my chickens go to roost, I like to throw several handfuls of scratch near their feed and water to get the warming effects of digestion going again as soon as they wake in the morning, as well. However, only provide enough to get them moving and digesting food. You want them to eat primarily from their higher protein feather grower feed and forage for any available bugs or worms they can find, if possible.

Heat Lamps

Providing supplemental heat has always been, and will continue to be, a controversial subject among chicken owners. It is my own opinion that, in the case of compromised birds such as these, supplemental heating is necessary as they have almost no feathers with which to envelope heat around their bodies for protection. However, to be used properly and safely, a few pointers need to be kept in mind.

Purchase red-coated infrared lamps, as they tend to hide red, irritated skin—chickens love to pick at red things.

Select lamp fixtures with reflectors and wire guards to reduce the likelihood of fire, should the fixture fall into a bed of litter.

Attach fixture securely at not one, but TWO locations approximately two feet above the roost. This way, should the lamp become dislodged, the second catch should keep the lamp from hitting the floor or a bird and starting a fire.

Keep all wiring, including extension cords, out of the reach of pecking chickens.

Keep a large, easily read thermometer inside the coop at all times and learn how warm the coop gets depending on outside conditions to avoid overheating your birds.

Don't turn the light off and on at various times, which can cause further molting. Use a timer or leave on 24 hours at all times.

Deep Litter Method

If you haven't discovered the deep litter method, you're in for a treat. Not only does it create wonderful material for the compost/garden by spring, it also generates

FERTILIZE YOUR CROPS WITH CHICKEN MANURE

If you have ever raised chickens, you know just how much manure there is to deal with. Have a garden or grow vegetables? There's a green alternative to chucking your birds' waste.

By Jason Houser

The nutrients found in aged chicken manure are about the same as what you would find in commercially bought fertilizers. The average composition of aged chicken waste and litter is approximately 1.8 percent nitrogen, 1.5 percent phosphate, and 0.8 percent for potash. The best thing about recycling manure is that you do not have to pay a thing for it, if you already raise chickens, and if you don't raise chickens you can probably get as much manure and litter as you want for free from someone that does.

Annually applying 40 pounds of chicken manure and litter to every 100 square feet of garden space will improve your vegetable garden immensely, and the plants will welcome the fertilization. On the average, an adult chicken will generate about 40 pounds of waste in one year. With that being said, it will only take six to 12 chickens to fertilize the average small farm garden for an entire year.

If you have ever walked into a chicken house, I imagine the smell of nitrogen made your eyes water, and the stench got to you. The same thing will happen to young, tender plants in your garden. With all the nitrogen in fresh manure, it will burn your young plants. Also, too much nitrogen can produce negative plant growth. This is why you need to age your chicken manure.

Give chicken manure time to age by spreading fresh poultry manure over your soil and turning the dirt at the end of the growing season to allow it time to decompose over the winter. However, you'll be required to keep your poultry birds out of the area for at least a year, preferably more.

You can also make liquid fertilizer. To create liquid fertilizer, place the chicken manure into a burlap bag. Then, throw a rock or brick into the bag to weigh it down and place the whole thing into a 35-gallon garbage can. Fill the garbage can with water and let it sit for about three weeks. Once the three weeks are over, you will have a liquid fertilizer full of nutrients from the chicken manure. You can use this fertilizer to water your plants, giving them added vitamins.

Chicken manure adds organic matter to your soil, increasing water holding capacity and beneficial biota.





“To create a windbreak for the run, stack bales at least 2 high against the outside perimeter of fencing.”

extra heat inside the coop as material decomposes. In late summer, lay several inches of litter, such as pine shavings, across the coop floor, including under the roost. As litter becomes packed and droppings build up, add a few more inches across the entire area. Keep fluffed with a pitchfork or throw a bit of scratch around and let the chickens' pecking and scratching do the work for you. Continue this process until you reach a foot or more by winter. Remove any litter that becomes soaked from leaks or entryways and repair problem areas. Properly managed, there will be no ammonia odor/buildup or dustiness.



(far left) Covering fencing walls (and tops of chicken tractors) with heavy tarps and anchoring ends with hay bales provide additional protection from the elements. If possible, stack bales against coop walls to increase insulation.

(above) When tarps are unavailable or runs are too large for tarps, stack hay bales at least two high to provide much needed windbreaks for naked birds.



Outside the Coop

Once you have the inside set up, focus attention outside. As with any coop design, you should have adequate ventilation along the upper edges of walls. However, in cold weather close ventilation holes along the north side while keeping southern facing vent holes open except during extreme wind, blowing sleet, snow, or ice. All windows should remain closed in cold weather, although south facing glass/plexiglass windows should remain uncovered to allow solar heat to pass through panes into the coop.

While insulated coops used in conjunction with other methods may offer sufficient protection to roosting flocks, many coops are not insulated and require at least temporary weather barriers. Run areas also need protective measures as flocks usually roam outside during the day despite bitterly cold conditions. Adding insulation need not be expensive or pretty, just effective. Use what you have on hand whenever possible, as these measures are usually temporary.

An effective and inexpensive way to add insulation is with hay bales, plywood, and tarps. To the coop, stack hay bales as high as possible along northern walls as a barrier against

A FEW TIPS TO KEEP YOUR FLOCK ENTERTAINED:

- > Hang various fruits, veggies and suet along fencing to provide appropriate pecking opportunities.
- > Make pecking blocks with melted non-poultry fat mixed with nuts, seeds, feed, scratch, dried fruit, and other goodies. Once cooled, place in trays throughout the run.
- > Place logs of varying heights, or other suitable perches, in multiple locations to provide those low in the pecking order an escape from bullies.
- > Securely attach mirrors to fencing and coop walls so curious flocks can investigate 'the other' chickens.
- > The best boredom buster is allowing monitored free-ranging, which provides all the natural pecking opportunities a chicken could hope for and gives victims of feather picking much needed rest from bullies.
- > Overall, anything new placed in the run, provided it's safe for pecking, becomes a source of entertainment, so use your imagination to stimulate your flock's curiosity.

the cooling effects of wind, rain, and sleet. To create a windbreak for the run, stack bales at least 2 high against the outside perimeter of fencing. If your run is small, as with most chicken tractors, drape the run top to bottom with heavy tarps and anchor securely at ground level to protect against blowing wind and precipitation. However, don't forget to provide a few inches of ventilation along the top of the southern fence wall to allow moist air and ammonia fumes to escape. On cold, but sunny days, pull the top of the tarp back to allow warm sunshine into the run. Just don't forget to close it back during inclement weather. To keep the tarp from ripping away from anchor points during strong wind, secure plywood or stack hay bales along the fence perimeter two to three feet high against the tarp. This added protection also provides a stronger windbreak for birds since wind won't tunnel through the tarp as easily.

Even after you get your flock safely through the winter with bright new feathers, continue to monitor daily activities closely. Chickens with a taste for feathers and coops with a history of parasites often attempt to return to their destructive ways, creating yet another vicious cycle of feather loss. **MP**

Naturally CLEAN

MAKING YOUR OWN SOAP IS AN EASY
AND FUN WAY TO BE CREATIVE *By Michael Pendley*

Until the early 1900's, most soaps were a homemade concoction that neither looked pretty, nor smelled pleasant. It was generally a mix of lye leached from wood ashes and fats leftover from animal slaughter or cooking. Since neither ingredient was consistent from batch to batch, and the fat may or may not have been fresh, the outcome was a bar of ugly, often foul smelling, soap that was functional, but not much else.

What Goes Into Soap

A quick spin around any farmer's market or natural foods store, these days, reveals a multitude of beautifully made, pleasant smelling soaps of just about every color and scent. So why are today's soaps so much better than what our forefathers turned out? Better ingredients and more refined methods take the credit.

While shopping for soaps from various custom soap makers is a fun hobby, making custom soaps at home is a relatively simple task. The upside is that you get to include your favorite locally fresh, all natural ingredients.

Soap is made when lye is mixed with oils or fats. Even though lye is caustic (more on that and safety concerns later), it is neutralized through a process known as saponification when blended with the oils. What is left, after the two components completely emulsify and saponify, is a blend of soap and a product known as glycerin. It is the glycerin in handmade soap that gives it its luxurious feel and leaves your skin feeling soft and smooth. Turns out, there is a thriving and highly profitable market for glycerin to be used in lotions and moisturizers. Because of this, many commercial soap manufacturers strip the glycerin from their soap and sell it separately. This is why your skin seems to dry out when using commercial soaps.

Choosing Your Ingredients

So how do you make soap? First you will need to gather the ingredients. As stated, the vast majority of soaps start with lye, also known as sodium hydroxide. Lye used to be available in most grocery stores, but safety concerns have caused most large grocery chains to drop lye from their inventory. A few hardware stores still carry lye, though it is often labeled as drain cleaner. Make sure it is 100 percent sodium hydroxide with no other ingredients. If you see anything listed on the label other than 100 percent sodium hydroxide, do not use the product for making soap.





Homemade soap offers lots of lather and a luxurious hand feel not found in commercial soaps.



(left to right) Additives like oatmeal are used for both texture and appearance in homemade soap. • Mushroom is the key additive here. • The possibilities of homemade soap are almost limitless. Here, beer and local honey combine to form a unique and beautiful bar of soap.

• Citrus peels and oils are common additives in homemade soap, offering both decoration and a clean, fresh scent to the soap. • Dried and ground herbals like flower petals add a deep color to soap.

• Have fun with your soap. Here's a bar of soap a chocolate lover can really get into.

A better choice is lye specifically designed for soap making. This product is available from many online retailers, including: Bramble Berry (Brambleberry.com), The Lye Guy (Theleyeguy.com), The Soap Dish (Thesoapdish.com) and many others. By purchasing from soap making suppliers, you are assured that the product you are using is pure and is the correct concentration for your recipe.

Determining the Hardness

The next ingredient for soap making is a fat or oil of some sort. Popular choices include plant-based oils like coconut oil, grape seed oil, vegetable oil, vegetable shortening, palm oil, olive oil or others. Butters like shea, cocoa and mango are also used on a regular basis. Animal fats like lard, tallow, duck or goose fat and even butter are still blended into soaps. As a rule, harder fats will form hard soaps and softer fats, softer soap.

One thing to take into consideration when deciding what type and how much fat to add to a particular recipe comes in the form of how much oil you want in the finished product. Professional soap maker Dot (better known as Memaw) Parker-Jordan of Two Forks Farm, Home of Hood's Heritage Hogs (hoodsheritagehogs.com) explains that, for each recipe, there is a given amount of fat that will saponify with a given amount of lye. The result of a fully saponified mixture is a rather dry and crumbly soap that doesn't have a particularly nice hand feel. In order to remedy that, extra oil or fat is added. Adding this

extra oil or fat to the soap blend is known as superfatting the soap. Memaw goes on to explain that the extra fat can be added during the cooking process or at the very end, depending on the desired outcome.

"If you add the extra oil or fat at the beginning of the process, you have no control over what the superfat content of the finished product will be. This method is fine for a soap with only one type of fat. If you want to control the content of the superfat oil, let the saponification finish, then add the superfat oil at the end and stir to incorporate it."

Adding Your Own Touch

Once the two basic ingredients, lye and fat, are decided on, the other additives you choose are what makes the bar of soap your own. Fresh herbs and leaves are added for their fragrance and often for their calming influence. Chamomile, lavender, lemongrass and many of the mint family are a few of the more popular plants used in homemade soap. Citrus peels like orange, grapefruit and lemon are used to add a pleasing and clean scent to the finished product. Herbals like juniper berries or lavender buds, and additives like oatmeal are used for appearance and texture.

Besides fresh and dried plant material, essential oils are also common additives to soap. The oils from many plant products, like citrus, cedarwood, chamomile, and even unusual ingredients like black pepper, are added to soap recipes because of their ability to add a lot of fragrance from just a few drops of oil.



When adding aromatics like herbs to your soap, it is often advisable to grind them into a fine paste before adding. Memaw says that her customers seem to prefer their soap to be more consistent and not have large pieces of plant material throughout.

"I like to dry my herbs and plant matter and grind them into a fine powder before mixing into the soap. This forms a more homogenous bar of soap."

Memaw also recommends adding plant-based ingredients at the end of the cooking process after the saponification has occurred.

"If you add the ingredients too early, the reaction between the lye and the fats or oils produces heat. This heat can actually cook the ingredients in the soap, turning them brown," she said.

After choosing your base and added ingredients, the next decision in making soap is the method you use. Some use heat, often from the oven or a slow cooker. (Pick one up at a yard sale and dedicate it to the task, don't make soap one day and cook a roast in the same pot the next). Other methods rely on the chemical reaction between the lye and the fat to produce all the heat necessary to blend the ingredients. Regardless of the method used, a good digital scale is crucial to turning out a quality-finished product. Don't rely on measured volume; always weigh all of your ingredients before starting the mixing process. Once all ingredients have been weighed and placed on the work surface, you are ready to begin the process. Measure, weigh and mix your ingredients in glass, ceramic or stainless steel containers.

"One last important safety precaution is this: when mixing the lye and water, always add the lye into the water, never the other way around."

Proper Precautions

Since all of the methods described here use lye, a few safety rules should be followed regardless of how you make your soap. Lye is caustic and contact with skin will result in a nasty burn. Heavy rubber gloves (dishwashing gloves work well) are a must. Long sleeves and pants instead of shorts, eye protection and closed toed shoes complete the safety uniform. Memaw recommends mixing the lye and water outdoors. Good ventilation in your soap making area is a must, as the early chemical reaction between the lye and water releases fumes that could cause irritation to the eyes, lungs and throat. Once the saponification has occurred, the lye is completely neutralized and is no longer dangerous. One safety note mentioned by Parker-Jordan is to always make sure your soap has mixed completely so there are no left-over pockets of un-neutralized lye contained in the bars. An online soap calculator (soapcalc.net) will help match the correct amount of lye, water and fat for soap.



(clockwise, from top left) A good digital scale is a must when making soaps. All ingredients should be weighed instead of measured by volume for the best accuracy. A stick blender speeds the mixing process and greatly reduces the work involved with soap making. As the soap ingredients saponify, they will first take on a pudding like texture, then move on to a thick applesauce like consistency as the process nears the end.

(bottom) Many soap makers use wooden molds. Unless the mold is made from silicone, it should be lined with wax or freezer paper before pouring in the soap to aid in removal after hardening.



to more easily incorporate the ingredients.

Blend the ingredients until the soap reaches the “trace” stage. Simply put, trace is reached when the lye water has emulsified.

Saponification will continue until all of the lye has been used in the reaction.

So how do you tell when the soap has reached trace stage? The appearance will be smooth, without pockets of separate material. The best way to test is to lift a spoon of the soap mixture from the pot and let it drip back down onto the surface of the soap in the pot. When the drips hold and set on the surface of the soap for a few seconds, trace has been reached.

At this point, set the timer for 15 minutes and sit back to watch the process work. Don’t walk away, as the soap sometimes “volcanoes”

One last important safety precaution is this: when mixing the lye and water, always add the lye into the water, never the other way around. Pouring water onto lye can cause a reaction that splashes the lye out of the container, possibly causing burns.

The Methods

HOT PROCESS

The hot process of soap making uses a heat source to warm the fats and oils and speed the saponification process once the lye and water are added. Begin by placing your fats and oils into the slow cooker and turning it on low.

While the fats and oils heat, add the measured lye to the water. Many soap makers prefer to use distilled or rain water to avoid additional chemicals. The chemical reaction between the two produces heat, so use cool water to hold the temperature down a bit. Carefully pour the mixture into the warmed fats and begin to stir. Memaw recommends an electric stick blender



up and out of the pot. If you notice the soap beginning to bubble and rise, simply stir it back down.

At the 15 minute mark, the soap will have a pudding like consistency. Give the soap another good stir and continue to cook. Total cooking times can range from 45 to 75 minutes. At the end of the process, the soap will take on an applesauce like consistency. Now is the time to stir in any additives or superfats you would like in your soap. Be sure the soap temperature is below 160 before adding essential oils, as hotter temperatures can damage the oils and limit their effectiveness.

Parker-Jordan says the most reliable way to check for doneness is to test the pH. Soap should have a pH in the 7-10 range. An easy way to test for this is to use liquid phenolphthalein. Simply add a drop of the liquid to your soap. If the color changes to a dark pink or purple, the soap isn't finished. Once a drop of phenolphthalein dripped onto the soap remains clear, the soap is finished.

COLD PROCESS

The other common method of making soap is the cold process method. Despite its name, the cold method still uses a heat source to warm the fats and oils to the 95-100 degree range. In the cold process, once the oils and fats are warmed, the heat source is no longer used.

As with the hot process, carefully weigh the ingredients, mix the lye into the water, and then add the lye/water to the fats. Without the added heat of the slow cooker, the process relies on the heat produced by the chemical reaction to "cook" the soap mixture.

Just like the hot process method, continue to stir the mixture until trace stage has been reached. Pour the soap into molds and wrap in blankets to hold the heat in. Cold process soap needs to age a minimum of six weeks for complete saponification of all lye to be achieved.

Molds

Regardless of the method used, once your soap has saponified, it needs to be poured into a mold to harden. Molds can be silicone soap molds in specific shapes or sizes, wooden molds custom made in preferred sizes, or as simple as an old Pringles can or half a paper milk carton. Except for silicone, molds should be lined with freezer or wax paper, plastic wrap, or parchment paper to allow the soap to release from the mold.

Slicing

Once the soap has been unmolded, it needs to be sliced into bars. Slicing can be accomplished with wire saws designed for the purpose, or simply with a sharp butcher knife.

(right) Age your soap on wire shelves that allow air to circulate around the bars. Some soaps need to age a week or two, while other recipes can age for months or even years.

(below) The glycerin in homemade soap draws water. To make your soap last the longest, keep it on a wire shelf or hang it in a crocheted soap bag like these.



Aging

After the soap has been sliced, the bars need to be aged. Some animal fat, hot process soaps can be used right away, but most benefit from at least two weeks of aging. To age the soap, simply place the bars, unwrapped, on a wire shelf. Memaw likes to place a small fan under the soap to aid in drying.

Some olive oil or other vegetable based soaps can age for years. Check your recipe for necessary aging times.

BASIC SOAP RECIPE

480 grams lard
120 grams coconut oil
Lye solution
85 grams lye (sodium hydroxide)
228 grams water
Scent (if you wish) can be added at trace
20 to 36 grams of your favorite essential oils or fragrance oils

Prepare using the hot process method and age for two weeks.

Once you have made your soap, you want to make it last as long as possible. Because glycerin draws water to itself, homemade soap left in a pool of water at the edge of the tub will quickly turn to mush. Store your soap on a rack above the water, or hanging in a crocheted soap bag made to hold the soap and double as a washcloth.

You can follow Memaw at Notesfromahillfarm.weebly.com to read more on soap making, homesteading and other things that she journals about farm life. 

“Some olive oil or other vegetable based soaps can age for years.”

A look at the Little Big Man, U.S. Marshal **Dave Rusk** >By Darryl Quidort

A United States Marshal lived a dangerous life on the frontier 150 years ago. U. S. Marshal, Dave Rusk, has been described as, “small in stature, but mighty in courage.” Although he stood only 5-feet 4-inches tall, he pursued gangs of outlaws with a relentless zeal.

Rusk knew how to handle a Colt six-gun. In fact, after serving as Captain of a Confederate cavalry unit during the Civil War, he joined the Robinson Brother’s Circus as an exhibition pistol shooter. However, it wasn’t the big .45 Colt that he carried or the Federal badge that he wore that impressed people, it was the little fellow’s devotion to his job that commanded respect and admiration from all.

Rusk was commissioned a Deputy United States Marshal in 1875 in the Western Federal District of Arkansas. He served there during the entire 21 years that Judge Isaac C. Parker occupied the bench of the District’s Federal Court in the border town of Fort Smith, Arkansas. Across the border was the Indian Territory, (now Oklahoma) a vast, 74,000-square-mile area assigned to the Indian Tribes that had been removed from the southeastern parts of the U. S. during the 1830s and 1840s. The huge, remote, rugged area attracted outcasts and outlaws whose faces often appeared on “wanted” posters back in “the states.” It was the job of Rusk and his fellow lawmen, who “rode for Parker,” to supply a steady flow of felons to Judge Parker’s court.

Now, Judge Parker was well-known as the “Hanging Judge.” A vicious crime wave had recently occurred across the Indian Territory and the court had been bogged down with an overload of cases until President Grant appointed Isaac Parker to the bench. Judge Parker took care of the backlog of court cases and kept the specially built gallows busy.

As well as a lawman, Rusk was a local, family man and had established a trading post at Oaks, a small village near Tahlequah, the capitol of the Cherokee Nation. His daughter, Mollie, told of once riding to town for supplies in a buckboard with her father. On the road they met a horseman that Rusk recognized from his picture on a warrant he had in his pocket. The horseman immediately wheeled his mount and

headed into the thick woods. Never one to shirk his duty as a lawman, Rusk leaped from the buckboard and ran into the timber. Soon, Mollie heard gun shots. Presently, Rusk returned and grimly climbed onto the buckboard seat. Young Mollie assumed that the warrant had been “served.”

Rusk was well-known and liked by the ranchers and farmers living in the lonely and sometimes savage land. The little man, wearing the huge “10 gallon” Stetson hat he favored, was a welcomed sight for the law abiding people as he rode his horse along the dusty trails through the Indian Territory. But, Rusk’s pale blue eyes would turn hard when fast action was needed.

The outlaw, Ned Christie, was a hard case. He was a full blooded Cherokee, tall, nice looking, intelligent, and he held a respectable job on the Tribal Council. He also liked his whiskey. He was drunk when he, allegedly, shot and killed Federal Deputy, Dan Maples, on May 4, 1887. To avoid the Hanging Judge, Christie made a run for it and escaped. With the help of his friends, he avoided capture for the next five years, although Rusk and other deputies tried to bring him in several times. Soon there was a \$1,000 federal reward offered for the capture of Christie, dead or alive. Eventually, Christie and Rusk developed a terrible grudge against each other.

Existing federal records show that there were at least four known occasions when Rusk tried to capture Christie. Deputies periodically checked Christie’s house and usually found it empty, but on September 26, 1889 they found the house occupied. They challenged Christie to give up but their challenge was answered with gun shots from the house. A lawman was seriously wounded. In the melee that followed, the house was set on fire. As Christie’s wife and young son ran from the burning house, his son was shot and killed. Deputy Thomas shot Christie in the face as he ran from the house. The bullet shattered Christie’s nose and put out his right eye. Running like a man possessed, even knowing that his son lay dying, Christie escaped.

Rusk continued his pursuit and learned that Christie had built a bullet proof fort, with double log walls, about a mile up the canyon from his burned out house. A November 25, 1890 assault on the fort left

four U. S. Marshals wounded and forced Rusk to call a retreat.

In fear of retaliation from Christie and his gang, Rusk loaded his family into the buckboard and moved them to safety at the home of a relative. When he returned to Oaks, he found his store a pile of rubble and ashes. Christie had burned him out.

On October 11, 1892 Rusk led a posse to the fort. During the gun fight that day, three sticks of dynamite were tossed against the log wall of the fort, but the explosion didn’t seem to damage Christie’s fortification. Then a wagon was filled with brush, set afire, and sent rolling downhill to crash against the fort. The fort still wouldn’t burn. The posse went home with two Marshal’s wounded.

Finally, an all-out effort was made to capture Christie. On November 2, 1892 Rusk was among 27 lawmen who assaulted Christie’s fort. The small army of Marshals surrounded the fort before daylight. At day-break, a man opened the door, but the lawman’s first shot missed and the door slammed shut. The outlaws now had the advantage. During a brief truce, which allowed a couple of Indian women and a child to leave the fort, the lawmen brought up a small cannon. Hundreds of shots were fired during the next 12 hours. Rusk’s big Stetson received three bullet holes. The outlaws were shooting where a taller man’s head would have been. The cannon shot three pound lead balls, but they only bounced off the sturdy, double log walls. An exceptionally heavy charge of gun powder finally blew the cannon up. An oak plank barricade was then fashioned on a wagon axil and five lawmen pushed their way up to the fort against a barrage of gunfire. A bundle of dynamite was set firmly against the fort wall and the fuse was lit. As the lawmen quickly backed their barricade away an explosion blew a large hole in the wall and set the fort on fire. Christie charged through the hole and was shot dead by U. S. Deputy, Wess Boman.

Later, during an interview, Rusk’s daughter, Mollie, observed that, “Although Dad didn’t collect the reward money for Ned Christie, he did have the last laugh. There was Christie, 6-feet 4, lying dead on the ground, while U.S. Deputy Marshal, Dave Rusk, 5-feet 4, was still on his feet!” **MP**

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